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S. Hrg. 104–312

AVIATION SAFETY: DO UNAPPROVED PARTS POSE A SAFETY RISK?

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Aviation Safety: Do Unapproved Part...

HEARING

BEFORE THE

SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT
MANAGEMENT AND THE DISTRICT OF COLUMBIA

OF THE

COMMITTEE ON
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED FOURTH CONGRESS

FIRST SESSION

MAY 24, 1995

Printed for the use of the Committee on Governmental Affairs

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AVIATION SAFETY: DO UNAPPROVED PARTS POSE A SAFETY RISK?

WEDNESDAY, MAY 24, 1995

U.S. SENATE,
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT
MANAGEMENT AND THE DISTRICT OF COLUMBIA,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 9:30 a.m., in room SD–342, Dirksen Senate Office Building, Hon. William S. Cohen, Chairman of the Subcommittee, presiding.

Present: Senators Cohen, Levin, and Lieberman.

Staff Present: Kim Corthell, Staff Director; Paul Brubaker, Deputy Staff Director; Frankie deVergie, Chief Clerk; Don Mullinax, Legislative Assistant with the Majority Staff; Andrea Gerber, Staff Assistant with the Majority Staff; Linda Gustitus, Minority Staff Director and Chief Counsel; Elise J. Bean, Minority Counsel; and Scott Parr, Legislative Fellow with the Minority Staff.

OPENING STATEMENT OF SENATOR COHEN

Senator COHEN. The Committee will come to order. Good morning.

Early in this century, the thought of moving 600 miles an hour, 6 miles above the Earth, was pure science fiction. Today, it is an accepted part of our professional and personal lives.

The popularity of air travel has climbed steadily since the Wright Brothers first took off from Kitty Hawk. All of us who travel the Nation's airways take comfort in the thought that flying in the United States is safe and well regulated. We take comfort in knowing that statistically air travel is the safest form of travel. The purpose of today's hearing is to make sure that it stays that way.

In order to ensure the continuation of safe air travel, we have given the FAA the responsibility to ensure that parts installed on aircraft are manufactured by FAA-certified facilities and meet critical performance standards. Before parts can be installed, they must have identifying marks or documentation showing that the process by which they were manufactured or repaired meets FAA's approval.

Unapproved parts are those that have not been manufactured or repaired in accordance with these FAA regulations. They include counterfeit parts, parts with fraudulent documentation, and parts manufactured without FAA production authority or without proper quality assurance.

FAA's approval is, in essence, the Government's "Good Housekeeping Seal of Approval" for the aircraft parts. As with the Good Housekeeping Seal, it means nothing if standards are not fully enforced.

The Subcommittee has been investigating whether the parts being used by our Nation's air carriers and general aviation aircraft and helicopters are, in fact, legitimately produced, sold, and installed. Regrettably, the Subcommittee has learned that unapproved parts are a growing problem, that the FAA has not done an adequate job in identifying and curbing the use of these parts, and that they do pose a safety problem.

While there may not be agreement this morning on the extent to which unapproved parts pose a safety risk, one thing I think is undeniable. Unapproved parts are finding their way into parts bins, repair stations, and aircraft all across the country.

Not even the Presidential helicopter is exempt from suspected unapproved parts. In 1994, an FAA investigation identified two parts brokers selling counterfeit helicopter parts. An FAA inspector identified this part as being one used on the Presidential helicopter, as well as other military helicopters, and recommended warning those responsible for maintaining these aircraft to take heed. I intend to ask the FAA Administrator, Mr. Hinson, about the outcome of this particular case.

As recently as 3 weeks ago, top FAA officials told the Subcommittee that the issue of suspected unapproved parts has been exaggerated and is largely a paperwork issue. The officials explained that most of these parts are airworthy, not critical, and in some cases were manufactured by the same companies that produce approved parts. They just do not have the required documentation.

This attitude, I must say, is of concern to me. To dismiss this issue as a paperwork problem demonstrates the FAA's failure to appreciate that the integrity of its regulatory function rests on the reliability of paperwork. In fact, FAA's own inspectors handbook states, "The FAA considers the falsification of records, logs or documents to be among the most serious violations. Such actions warrant the most severe sanctions."

The handbook also states, and again I am quoting, "noncompliance with recordkeeping requirements also strikes at the very heart of our system of monitoring and ensuring compliance with safety standards. Often, without a record indicating compliance, the FAA and the air carrier have no other means to be assured that compliance has in fact been achieved."

Improper or missing paper has serious implications for the aviation parts industry, and certainly it compromises the integrity of the regulatory system that is designed to assure compliance with safety standards. Without proper documentation, there is little assurance that a part is airworthy.

While the counterfeit watch sold by the local street vendor may, indeed, tell time, I think we would all agree that mechanically it is by no means the same as that of the name brand. And although you can make the argument that there is no problem with unapproved parts as long as they work, I seriously doubt that anyone would knowingly travel on a plane powered by a jet engine that is the aeronautical equivalent of a fake Rolex.

In support of its contention that unapproved parts do not pose a significant safety threat, the FAA points to statistics which purport to show the relatively small number of suspected unapproved parts in aviation inventories. For a number of reasons, these statistics are understated and, therefore, in my opinion, of questionable value.

First, there is no mandatory requirement for parts manufacturers, brokers, repair stations, or air carriers to report suspected unapproved parts. Consequently, the FAA cannot and should not suggest that its statistics demonstrate the true magnitude of the unapproved parts in aviation inventories.

Second, the usefulness of FAA statistics may also be limited given the number of confidential sources that have told the Subcommittee that some major airline employees have been instructed by management not to report suspected unapproved parts to the FAA.

Confidential sources have also told the Subcommittee that FAA inspectors themselves have been known to withhold reports of suspected unapproved parts submitted by air carriers and repair stations. These inspectors fear criticism from their FAA superiors for not discovering the parts themselves sooner.

Finally, the FAA's numbers are simply misleading. The FAA's database shows that 1,224 reports of suspected unapproved parts have been received since October of 1991. While that may not sound like a great deal considering the millions and billions of parts in aviation inventories, the number does not tell the whole story. Each single report may refer to thousands of individual parts. For example, one recent report from south Florida involved at least 100,000 parts. These parts were considered safety-critical because they were for aircraft brake systems.

Moreover, the FAA numbers do not fully explain the gravity of the situation. Twenty-nine percent of the reports of suspected unapproved parts had the potential to cause a catastrophic component failure or directly affect the safety of the aircraft.

Critical aircraft parts which are bought and sold with improper, forged, or missing documentation represent more than a paperwork problem. Indeed, the entire integrity of the parts distribution system is rooted in the validity and reliability of identifying information that is required by the FAA. Yet the Subcommittee's investigation shows that this documentation is easily faked and, according to many sources, the odds of getting caught by the FAA are virtually non-existent.

We are going to hear from a witness today who was convicted of conspiring to defraud customers by selling them falsely certified parts. He will describe how he was able to falsify maintenance documents and identification plates for unapproved parts so these parts, some of which were junk, could be resold to air carriers. He did all of this with no fear of detection from the FAA.

Even my own staff got into the act. One of my staff members purchased these scrapped jet engine blades. I have a little package of them here. These particular blades were purchased from a junk dealer in Miami. In fact, he bought the very blades that are in the bag being held here and also are shown in the photograph on the wall. The bag had a red tag on it, and it should be noted that that red tag identifies the blades as "unserviceable." To the naked eye, these particular blades simply look like used parts.

Before selling the blades, the scrap yard owner removed the red tag so the parts could not be traced back to the local repair station from which he had purchased them, and today we are going to hear testimony that will confirm that, once removed from the bag, this blade could be furnished with false documentation and easily resold to a repair station or an air carrier.

The scrap yard dealer, once convinced my staff were not members of the press, but unaware that they were, in fact, Senate investigators, said, "I know some of you boys rework these things, but that is not my concern." He also told them he had been buying unserviceable parts from about five separate repair stations for the past 20 years.

Although scrap dealers are not doing anything illegal by reselling used and un-airworthy parts, they are fully aware of the value of the parts and certainly the less than benign intentions of those who are buying them. If manufacturers, repair stations, and airlines would properly mutilate scrap parts prior to disposing of them, the parts would only be worth the value of the metal. While the FAA has issued a circular giving guidance on how to properly dispose of scrap, the circular is advisory only.

After today's hearing, no one should doubt how lucrative selling unapproved parts can be. For instance, this part that I held up before is a jet engine blade that can be used on 727s and on DC–9s. Some of these parts new sell for roughly $1,500 each. This was purchased for $1.30. This particular part, if it is cleaned up or refurbished for a small fraction of the original cost, can then be placed, with or without false documentation, back into the aviation inventory.

If this part were installed on an aircraft, it could easily fail and cause a catastrophic engine failure, and the best-case scenario is that the pilot could shut down the one engine and land the plan safely with only one engine functioning appropriately.

The worst case is that the engine could catch on fire and cause the plane to crash. In other words, a multi-million dollar plane containing millions of parts could be put in serious jeopardy simply by the failure of a blade like this one costing a little more than a dollar.

During the Subcommittee's investigation, we discussed this issue with a number of people who have direct knowledge of the problem. We also interviewed scores of aviation experts and others in the industry who told us that not only are unapproved parts a problem, but that they are a "present danger to the public safety."

It would be irresponsible to ignore evidence of safety problems and fail to act. I am concerned that the FAA to date has been more reactive than proactive on the issue. We should not have to wait for a major catastrophe to convince the FAA to aggressively address the problem of unapproved parts.

The simple fact is that we do not really know the extent to which unapproved parts are being used on our aircraft. And not knowing means that neither the FAA nor anyone else can claim that it is not a major problem.

Americans have grown to expect that flying is and will remain safe. More importantly, they expect the Government to keep it that way. Consequently, it is critically important that we carefully examine the testimony that is going to be presented this morning and work together to determine the best course of action from this point forward.

One final but I think important note, during the Subcommittee's investigation there were many credible individuals who are aviation experts who were contacted to obtain their views on unapproved parts. With few exceptions, all brought serious allegations to the Subcommittee's attention.

From the outset, many indicated they were unwilling to publicly discuss the seriousness of the unapproved parts problem. These individuals, including current and former employees of the FAA, air carriers, and repair stations, told the Subcommittee that they were afraid of repercussions from the FAA or their employers if they openly cooperated with the Subcommittee. All of them agreed that unapproved parts are a major and a more significant problem than the FAA has acknowledged.

I simply want to put everyone on notice that if I or any members of the Committee receive evidence that FAA officials or anyone else engages in harassment or reprisals against any of the individuals who cooperated with the Committee, we intend to see to it that they are investigated and, indeed, prosecuted.

PREPARED STATEMENT OF SENATOR COHEN

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On one final but important note, during the Subcommittee's investigation, many credible individuals who are aviation experts were contacted to obtain their views on unapproved parts. With few exceptions, all brought serious allegations to the Subcommittee's attention.

From the outset, many indicated that they were unwilling to publicly discuss the seriousness of the unapproved parts problem. These individuals, including current and former employees of the FAA, air carriers, and repair stations told the Subcommittee that they were afraid of repercussions from the FAA or their employers if they openly cooperated with the Subcommittee. All agreed that unapproved parts are a more significant problem than the FAA has acknowledged.

If I receive evidence that FAA officials or anyone else engages in harassment or reprisals against any of the individuals who have cooperated with the Subcommittee's investigation, I will see to it that they are investigated and prosecuted.

Senator COHEN. With that, I would yield to my colleague from Michigan, Senator Levin, for an opening statement.

OPENING STATEMENT OF SENATOR LEVIN

Senator LEVIN. Thank you, Mr. Chairman.

It is politically popular these days to attack Federal regulation. Some critics attack Federal regulations as unnecessary red tape and Federal regulators as interfering bureaucrats. But when it comes to regulations which protect public health and safety, like regulations ensuring aircraft safety, the public does not feel that way. When it comes to the flights that 500 million people board every year in this country, the public wants tough regulation, and it wants tough oversight.

The Federal Aviation Administration is charged with overseeing aircraft safety and ensuring that the parts used in domestic aircraft are safe and airworthy. It has not always been given a consistent message about how tough it should be in this area. In 1981, for example, the FAA proposed a regulation which, in part, would have enabled it to revoke the authorization of anyone caught making false statements in connection with producing an aircraft part. But instead of winning praise back in 1981 for strengthening enforcement, some members of the House Small Business Committee castigated the FAA for proposing this "harsh" enforcement penalty. It was another 10 years, until 1992, before the FAA was able to get that enforcement tool onto its books. Today, the FAA is properly being scrutinized for not being tough enough on enforcement.

It is my hope that, despite past criticism and despite the anti-regulatory fervor that infects Washington these days, we will send one unified message to the FAA: that strong Government oversight is appropriate in this area, that it is needed, and that a goal of zero tolerance for unapproved aircraft parts is worth pursuing.

Mr. Chairman, let me ask that the balance of my statement be inserted in the record at this point.

Senator COHEN. Your full statement will be included, Senator Levin.

PREPARED STATEMENT OF SENATOR LEVIN

It's politically popular these days to attack federal regulation. Some critics attack federal regulations as unnecessary red tape and federal regulators as interfering bureaucrats. But when it comes to regulations protecting public health and safety—like regulations ensuring aircraft safety—people don't feel that way. When it comes to the flights that 500 million people board every year in this country, the public wants tough regulation, and it wants tough oversight.

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It is my hope that, despite past criticism and despite the anti-regulatory fervor infecting Washington these days, we will send one unified message to the FAA—that strong government oversight is appropriate in this area, that it is needed, and a goal of zero tolerance for unapproved aircraft parts is worth pursuing.

A domestic passenger airplane can contain as many as 6 million parts. Each year, about 26 million parts are used to maintain domestic aircraft. Industry has estimated that as much as $2 billion in unapproved parts are now sitting on the shelves of parts distributors, airlines and repair stations. While "unapproved" doesn't necessarily mean "unsafe," and there's no evidence that an unapproved part has caused a single domestic commercial aircraft accident, there is a greater risk when unapproved parts are used, and we shouldn't wait until an accident happens to beef up enforcement.

The FAA knows, perhaps better than we do, the stakes involved here. To its credit, it began several years ago to take some of the steps needed to get a handle on the unapproved parts problem. In 1992, it created a standard system for reporting suspected unapproved parts or SUPs. In 1993, it established a formal SUP Program and began industry education efforts. In 1994, it took steps to stop rejected aircraft parts from resurfacing for sale in the marketplace, increased surveillance of foreign manufactured parts, and revised the tag known as Form 8130–3 to keep better track of new and used aircraft parts.

Early in 1995, after setting up new systems for fast-track manufacturing approvals, FAA announced to the aviation community that the days of lax enforcement were over. It gave parts manufacturers 3 months to file applications for FAA approval of their parts, with no questions asked about prior sales of these parts. It announced that at the end of this amnesty period, companies failing to file applications would face stepped-up enforcement. That amnesty period ends next week, on May 30. The amnesty is an admission by the FAA that it hasn't been doing the job needed, but it is also a promise that, starting next week, enforcement is going to get tougher.

The FAA is not the only agency strengthening enforcement in this area. Over the past 5 years, the Department of Transportation Inspector General and the Federal Bureau of Investigation have obtained 136 indictments, 98 convictions, about $50 million in criminal fines, restitutions and recoveries in cases involving unapproved aircraft parts. That's the good news. The bad news is that additional investigations are underway with no sign of a flagging market in unapproved parts.

More needs to be done. Among the actions that can and should be taken to begin dismantling the market for unapproved parts are the following.

First and foremost, after the amnesty period ends, the FAA needs to follow through on its promise of tough enforcement. Starting May 31st, parts manufacturers, distributors, repair stations and airlines need to know that the FAA will no longer be turning-a blind eye to the sale or use of unapproved parts.

Second, the FAA needs to take action on several long-awaited proposals. The first is broker accreditation. While I don't at this time support the Inspector General's recommendation that brokers be required to obtain a federal license to sell aircraft parts, I do support the voluntary broker accreditation proposal that's been pending before the FAA since December 1993. Under this proposal, to become an "accredited" distributor of aircraft parts, a company would have to successfully complete a third party audit aimed at ensuring it deals only with approved parts. This proposal is the result of a negotiated rulemaking and broad industry support, but has been languishing at FAA for more than a year.

Another proposal deserving immediate action involves Federal Aviation Regulation 21.2 which prohibits intentional false statements in connection with producing aircraft parts. A proposal to broaden this prohibition to include intentional false statements in any aircraft part record, including records of sales, transfers, repairs or installations, has apparently been under consideration at FAA for months, with no deadline for completion. Action to produce a draft regulation is overdue.

Another key proposal, submitted to the FAA in February after a negotiated rulemaking, sets up a system to evaluate the $2 billion in unapproved parts now sitting on industry shelves, dispose of unairworthy parts, and obtain industry commitments to avoid future purchases of unapproved parts. This proposal should be published as soon as possible for public comment.

In addition to acting on these pending proposals, the FAA could move on several other fronts. First, the FAA should consider remedying a fundamental discrepancy in its regulations which currently require producers, under Federal Aviation Regulation Part 21, to manufacture approved parts but, under Federal Aviation Regulation Part 43, don't require maintenance and repair personnel to use only approved parts in their work.

Next, the FAA should undertake additional efforts to increase use of the parts tag, FAA Form 8130–2, to improve the traceability and reliability of documentation of new and used aircraft parts.

FAA oversight of foreign manufactured parts, a growing segment of the market, needs to be improved to ensure safety and even-handed treatment with domestically-produced parts.

Finally, a report being prepared by an FAA-DOD working group on how to handle military aircraft parts, should be given high priority and acted on quickly, once received.

There are many other pressing problems in aviation safety than the issue of suspected unapproved parts. At the same time, however, it's clear the FAA hasn't been doing all it reasonably could or should in this area. The goal is zero tolerance for unapproved aircraft parts. Much more can be done to get there.

Senator COHEN. Senator Lieberman?

OPENING STATEMENT OF SENATOR LIEBERMAN

Senator LIEBERMAN. Thank you, Mr. Chairman.

I appreciate very much that you have convened this hearing today. The problem of bogus parts and suspected unapproved parts came to my attention last year when a member of my staff was reviewing the DOT's inspector general semiannual report, which highlighted this potentially widespread problem of fly-by-night companies and brokers attempting to sell substandard counterfeit replacement parts to commercial airlines. Obviously, we found this disturbing, and I am very pleased, Mr. Chairman, that you and your staff have not only been investigating the problem but have now convened this public hearing today.

I want to start just by mentioning a case that I read about at that time that I found particularly disturbing. In 1992, a man named Dennis Brett, who was an unregulated aircraft parts broker in Dallas, acquired and sold jet engine turbine discs which had been salvage from a jet that crashed in Brazil in 1989. Brett provided fraudulent documentation on the discs, including certification that the discs, and "at no time were subject to severe stress or heat as in catastrophic engine failure, accident, or fire." A lie. He then sold the discs to Aerothrust Corporation, which is an FAA-certified repair station in Miami, as well as to a repair company in Hamburg, Germany.

According to Aerothrust work orders, one disc was installed on an engine belonging to America West, and another disc was installed on a Federal Express B–727 which was returned to service and was in use at the time that Aerothrust detected that the serial numbers on the discs were not in order and ordered a recall.

By working with Pratt & Whitney, the original engine manufacturer, Aerothrust determined that the serial numbers on the discs had been falsified.

Now, the story has a happy ending, although not for Mr. Brett, fortunately. Mr. Brett was convicted of wire fraud and was sentenced to 5 months in prison, followed by 5 months in a halfway house, then 2 years of supervised released, and he was also given a fine. The bad news, obviously, is that there may be other Dennis Bretts operating in the parts market, many others, as the 98 criminal convictions on parts fraud over the last 4 years would indicate.

Moreover, even when they are caught and punished, these criminals can go back to selling aircraft parts when their sentences are up, and that takes us to the basic question before the Subcommittee today, Mr. Chairman, of whether unapproved parts really do pose a risk to public safety.

As I see it, this is a complex problem with two basic elements. The first is that commercial airlines have millions of parts in their inventories that do lack required FAA certification. And the vast majority of cases, from what I understand at this point, the parts appear to be airworthy. But for a variety of reasons, the paperwork may never have been supplied for the part or was dropped during transfer, repair, or resale of the part.

The second problem is the counterfeit manufacture and sale of aircraft parts that are defective, substandard, or produced by a manufacturer that is not licensed by the FAA. We are going to hear this morning from Inspector General Schiavo that counterfeit parts as well as the much more widespread suspect unapproved parts, or SUPs, both pose a threat to public safety. FAA Administrator Hinson will tell us that the SUPs do not pose a significant safety problem for our air transportation system.

While it seems that all parties present would agree that counterfeit parts are a very serious problem, justifying intense scrutiny and strict enforcement of applicable criminal law, the issue of these suspected unapproved parts is the source of controversy among officials in Government and industry. And even if we assume that these SUPs do not pose a threat to safety in and of themselves, it is, at least for me, very difficult to separate the two problems because current standards on certification which are poorly enforced in some areas of the aviation industry may allow counterfeit parts into the inventories of commercial airlines. And this, I believe, is where the greatest threat to public safety arises.

Mr. Chairman, I have more to the statement. I would ask at this point that it be printed in the record as if read, and I look forward to having some of the questions I have raised now and others, obviously, answered as the hearing proceeds.

Senator COHEN. Thank you, Senator Lieberman. Your entire statement will be made part of the record.

PREPARED STATEMENT OF SENATOR LIEBERMAN

Thank you Mr. Chairman, and let me take this opportunity to commend you for holding this hearing. The problem of bogus parts and suspected unapproved parts came to my attention last year while my staff and I were reviewing the Department of Transportation Inspector General's latest semiannual report. The report highlighted the potentially widespread problem of fly-by-night companies and brokers attempting to sell substandard, counterfeit replacement parts to commercial airlines. I found this disturbing, and since then my staff and I have looked into this matter further. I was pleased to learn that you and your staff at the Subcommittee have also been investigating this problem, and I am happy to join you here today in order to take a comprehensive look at this problem and hear the recommendations of experts in the field.

I'd like to start by mentioning a case that I found particularly disturbing. In 1992, Dennis Brett, an unregulated aircraft parts broker in Dallas, acquired and sold jet engine turbine disks which had been salvaged from a jet that crashed in Brazil in 1989. Brett provided fraudulent documentation on the disks, including certification that the disks "at no time were subject to severe stress or heat as in a catastrophic engine failure, accident or fire." He then sold the disks to Aerothrust Corporation, a FAA certified repair station in Miami, as well as a repair company in Hamburg, Germany. According to Aerothrust work orders, one disk was installed on an engine belonging to America West, and another disk was installed on a Federal Express B–727 which was returned to service and was in use at the time that Aerothrust detected that the serial numbers on the disks were not in order and ordered a recall. By working with Pratt and Whitney, the original engine manufacturer, Aerothrust determined that the serial numbers on the disks had been falsified.

This story has a happy ending. Mr. Brett was convicted of wire fraud and was sentenced to 5 months in prison, followed by 5 months in a halfway house, then 2 years of supervised release, and fined $4,000. The bad news is that there may be many other Dennis Bretts operating in the parts market, as the 98 criminal convictions on parts fraud over the last 4 years would seem to indicate. Moreover, even when they are caught and punished, these criminals can conceivably go back to selling aircraft parts when their sentences are up.

Which takes us to the basic question before the Subcommittee today—whether unapproved parts pose a risk to public safety. As we have all heard by now, this is not a foregone conclusion.

This is a complex problem with two basic elements. The first is that the commercial airlines have millions of parts in their inventories that lack required FAA certification. In the vast majority of cases the parts appear to be airworthy, but for a variety of reasons the paper work may never have been supplied for the part, or was dropped during transfer, repair, or resale of the part. The second problem is the counterfeit manufacture and sale of aircraft parts that are defective, substandard, or produced by a manufacturer that is not licensed by the FAA.

We will hear from Inspector General Schiavo that counterfeit parts, as well as the much more widespread "Suspected Unapproved Parts," or SUPs, both pose a threat to public safety. FAA Administrator Hinson will tell us that SUPs do not pose a "significant safety problem for our air transportation system." While it seems that all parties present would readily agree that counterfeit parts are a very serious problem justifying intense scrutiny and strict enforcement of applicable criminal law, the issue of Suspected Unapproved Parts is the source of much controversy among officials in government and industry. And even if we assume that SUPs do not pose a threat to safety in and of themselves, it's very difficult to separate the two problems because current standards on certification, which are poorly enforced in some areas of the aviation industry, may allow counterfeit parts into the inventories of commercial airlines. And this, I believe, is where the greatest possible threat to public safety arises.

As unsettling as the case I mentioned earlier is, it is important to reiterate a point we will hear many times today—that no domestic airline accident has ever been attributed to unapproved parts. This is a weighty fact and it should be a significant factor in any determination Congress makes as to whether or not additional regulation of the parts market is necessary.

The relative threat that unapproved parts pose to commercial aviation must also be viewed in context of the National Transportation Safety Board's assessment of this problem. As my colleague has noted, the NTSB did not include counterfeit or unapproved parts in its Top Ten Most Wanted List of safety hazards in commercial aviation.

The other side of the coin is that aerospace manufacturers, parts brokers, repair stations, and the major airlines have all expressed serious concern about this problem. They have all devoted significant time and expense to controlling unapproved parts. They have stated that unapproved parts pose not only a safety risk, they create significant economic problems as well. Pratt and Whitney and other manufacturers worry about litigation, liability, and warranty expenses that unapproved parts can generate, in addition to the damage that failure of a counterfeit part could do to a manufacturer's reputation. Finally, the airlines have a very real problem if the public perceives unapproved parts as a threat to safety, even if the actual threat turns out to be minute. These are significant concerns for members of industry and I hope this hearing will help address those concerns. In the end though, our primary concern must be public safety. And while we may not be able to quantify the safety risk cause by unapproved parts, I believe we should heed the cautionary words of Richard Feyman, who diagnosed the source of failure on the Space Shuttle "Challenger." To paraphrase Mr. Feyman, he admonished "Prove to me the system is safe; don't make me prove it is unsafe."

Indeed, we may never be able to determine to what degree unapproved parts pose a safety risk, but the stakes are so high when critical parts are involved that we must conduct a thorough examination of this issue in order to determine which steps have worked, which have not, and which must be taken in order to minimize the threat to public safety that unapproved parts may pose.

For starters, I would like to commend the Office of the Inspector General for its vigorous pursuit of counterfeit parts brokers, as well as the FAA for a number of actions it has taken in recent years to control unapproved parts. While the FAA's initiatives are too numerous to mention every one, I will note Advisory Circular 21–29, "Detecting and Reporting Suspected Unapproved Parts," which established the FAA's voluntary program for industry to report SUPs; formation of the Parts Approval Action Team; the Approved Parts Seminar which FAA has offered to industry to increase awareness of the SUPs problem; and the February 23rd Notice in the Federal Register regarding enhanced enforcement of modification and replacement parts.

I think there are two very noteworthy aspects of the FAA's recent initiatives. The first is that in issuing its February 23rd notice in the Federal Register informing industry that FAR 21.303 will be enforced more aggressively, the FAA essentially admitted that its earlier enforcement was inadequate and in need—of enhancement. While some might use this admission as an opportunity to criticize the FAA, I would like to applaud the agency for its action. As we strive to reinvent government, Congress should encourage Federal agencies to admit their shortcomings and make positive recommendations for change.

The other salient feature of the FAA's recent initiatives is that almost all of them have been nonregulatory, cooperative efforts with industry. In this respect the FAA seems to have been ahead of the curve, given the tidal shift away from regulatory actions we have seen recently. I, too, question whether a new FAA rulemaking to control unapproved parts is suitable—or politically feasible—at this time, and I seriously doubt that the FAA has the resources to do this. The FAA has clearly considered a variety of creative means to accomplish what some would like to see occur through a rulemaking. At the least we should give the FAA an opportunity to implement and review its pending nonregulatory initiatives, especially enhanced enforcement of FAR 21.303, before we look to a new rulemaking.

But this takes me to what I think has been wrong with the FAA's response to the problem of unapproved parts. Overall, I think the single biggest problem in the FAA's response has been its lack of dispatch and lengthy delay on certain joint efforts with industry. For instance, for quite some time now industry representatives have recommended updating FAA Advisory Circular 21–303.1A in order to clarify and improve the Parts Manufacturing Approval system. An ad hoc industry task force proposed guidance to update AC 21.303.1A. This guidance, in the form of a document known throughout the industry as "8110.XXX" or "8110 Triple X," was provided to the FAA in December, 1993. FAA has still not acted on it. Similarly, the FAA has suggested an alternative to new regulation by proposing a system whereby brokers could voluntarily seek third-party accreditation for quality standards that would make them a preferred source for the airlines and repair stations. Great idea. Unfortunately, the FAA has been considering the draft text of the advisory circular for this proposal for over a year and a half. The FAA tells me that this should be published in the Federal Register for comment by the end of June. It's too bad this wasn't done sooner.

Lastly on this point, I will mention that in September, 1993, the Senate Appropriations Subcommittee on Transportation requested comment from the FAA on what can be done about the problem of unapproved parts.

This was offered by the Senate as an alternative to a House recommendation that the FAA initiate a rulemaking on unapproved parts. The FAA told the Senate that it did not believe new regulations were appropriate, and asked that it be provided a chance to offer Congress alternative recommendations. The Senate Appropriations Committee agreed, and simply requested that FAA respond within 6 months of enactment of the fiscal year 1994 Department of Transportation appropriations bill. That gave the FAA until March, 1994 to respond. So far the FAA still has not responded to the Committee. This sluggishness does not inspire confidence in the public or industry, and for those who doubt the FAA's course of action it only provides more fodder for criticism.

Finally, I fault both the FAA and the Office of the Inspector General for the breakdown of relations at the executive level in recent years. It has been widely reported to members of this Subcommittee that relations between the FAA and the IG have been strained, if not hostile, over this issue. We are all human, and it is well known that Agency IG relations across the government can be strained at times. But on a matter such as this, where public safety is in question, managers at the agency and the office of the inspector general must redouble their efforts to work cooperatively.

A positive development on this front occurred last year, but seems to have been quickly forgotten. On August 4th, FAA Associate Administrator for Regulation and Certification Anthony Broderick wrote to the Office of the Inspector General in an appeal for a more cooperative relationship. Mr. Broderick wrote "Our staffs should know that there is a cordial, candid and fully professional relationship between agency executives, as opposed to the clear message presently sent that there is a "we-they" attitude prevalent." Mr. Broderick goes on to say, "I hope that we can begin our efforts by immediately agreeing to resolve the unapproved parts issues within 60 days. Your people have committed resources to this subject area in a new audit. Our required (now overdue) Report to Congress on the regulation of parts brokers (which is being coordinated with your office) could serve as the mechanism to document and announce our mutual agreement on an unapproved parts program." An encouraging step by Mr. Broderick. Unfortunately, as far as I have been told, the OIG did not respond in writing, and plans to hold a follow-up meeting fell through several times.

The first thing the FAA and the OIG should do to control unapproved parts is hold that meeting on Monday morning. Reestablish your relationships at the executive level and send a clear signal throughout your respective agencies that an expedited, cooperative efforts is underway to clean up the inventory of uncertified parts and root out the crooks.

There are a few additional steps I would recommend:

1. Publish Advisory Circulars 20–DU (third party accreditation) and "8110 Triple X" (clarification and improved administration of PMA process) in the Federal Register for comment as soon possible. Likewise, expedite work on drafting FAR PART 3, which, I understand, is an FAA proposal to establish a regulation regarding

fraudulent misrepresentation of FAA required parts certification. Get this published in the Register for comment as soon as possible.

2. In order to strengthen the February 23rd notice in the Federal Register, the FAA should work with the OIG to develop benchmarks to measure how increased enforcement of FAR 21.303 is working. Once the benchmarks are developed, OIG should devote some of its auditing resources to reviewing whether or not the goals set out for increased enforcement are met. OIG should describe these reviews in its semi-annual reports to Congress.

3. Send us the report required by the Senate Appropriations Committee in September, 1993 as soon as possible. Include in the report a rundown of the steps the FAA and OIG are taking to improve your relations and work as a team.

I'm sure others here will have additional recommendations, and I look forward to hearing those. That concludes my remarks, Mr. Chairman. Thank you for calling attention to this important issue.

Senator COHEN. I am going to ask all of the witnesses to stand and raise their right hands. Do you swear to tell the whole truth and nothing but the truth, so help you God?

Ms. SCHIAVO. I do.

Mr. DECARLI. I do.

Mr. ZINSER. I do.

Mr. SCHAEFER. I do.

Mr. WEINTROB. I do.

Mr. KUBIC. I do.

Senator COHEN. As our first panel, I want to welcome Mary Schiavo, the Inspector General of the Department of Transportation. Ms. Schiavo is accompanied by Raymond DeCarli, who is Assistant IG for Auditing; Todd Zinser, Deputy Assistant IG for Investigations; and Harry Schaefer, Assistant Special Agent-in-Charge.

I also want to welcome Thomas Kubic, the Section Chief of the Criminal Investigative Division of the FBI.

Why don't you proceed, Ms. Schiavo?

TESTIMONY OF HON. A. MARY SCHIAVO,[1] INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION; ACCOMPANIED BY RAYMOND J. DECARLI, ASSISTANT INSPECTOR GENERAL FOR AUDITING; TODD J. ZINSER, DEPUTY ASSISTANT INSPECTOR GENERAL FOR INVESTIGATIONS; HARRY SCHAEFER, ASSISTANT SPECIAL AGENT IN CHARGE; AND LAWRENCE H. WEINTROB, DEPUTY ASSISTANT INSPECTOR GENERAL FOR AUDITING

Ms. SCHIAVO. Thank you, Mr. Chairman. I also should mention that I have brought with us Mr. Larry Weintrob, who has worked on a number of these audits.

With the Committee's permission, I will simply ask to insert my written statement as well as the exhibits that go along with it, for the record. It is lengthy, and we will save time here this morning, if that is acceptable.

Senator COHEN. Your full statement will be included.

Ms. SCHIAVO. Thank you.

I will start off my remarks this morning by pointing to the chart that we have prepared for the Committee. This chart summarizes in, of course, very short form, the kinds of parts that we have picked up and have worked on during our OIG investigations. And as you can see from this chart, we have picked up virtually all kinds of parts on a plane, so much so, that there is very little on a plane that cannot be capable of being picked up in one of our investigations or execution of our search warrants.

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[1] The prepared statement of Ms. Schiavo appears on page 69.

As you will see from the chart, this includes everything from small parts that somebody might consider insignificant to very large, important safety-related parts and very critical parts in the plane. This, probably better than anything, summarizes what we found in these cases. These certainly are not a paperwork problem.

I have another chart which I would like to show you. We have summarized the kinds of parts and the kinds of problems that we have run across. Many will simplify this by saying you either have a counterfeit part or you have a paperwork problem. That is not the situation that we are finding. We are finding many, many different kinds of situations, and each poses its own particular problem. I do want to point out that a part that is missing its paperwork is not necessarily just a paperwork problem, because we all agree, as the Senator said, that counterfeit parts are a problem but a part without its paperwork or without any kind of identification could easily be a counterfeit part. Indeed, they often are. So a lack of proper identification is not simply a paperwork problem, as many would have you believe and then write off the issue. These are the kinds of situations we encounter in our cases and the FAA encounters them as well. It is not just a simple case of either it is counterfeit or it is a paperwork problem. It is simply not.

Now, I will run through quickly, because I know you want to keep my opening statement to about 10 minutes, some of the kinds of parts that we found. Of course, we had to bring the small ones in that we could get here. But we also have large parts from a plane. We have cases ongoing where we have entire part assemblies, entire pieces of planes like huge landing gear assemblies, tail assemblies, et cetera. We brought a sampling here today because space is at a premium, and I will point to them.

For example, right in front is a counterfeit nose wheel. There was an AD issued on that, and, by the way, even though there was an AD issued on that part, it is not in the FAA SUPs database.

Senator LEVIN. What is "AD"?

Ms. SCHIAVO. Airworthiness directive.

Senator LEVIN. Just state that a little more clearly for the record. An AD is an airworthiness directive?

Ms. SCHIAVO. An airworthiness directive, yes. It is an alert to tell the industry there is something wrong, and you have to go check to see if your plane has the part on it.

This nose wheel was pulled off a commercial passenger carrier, an MD–88. It had been modified to reflect that it is an MD–88 wheel when, in fact, it is a DC–9 wheel. Of course, the airworthiness directive said it was counterfeit.

We have brought many, many parts that we seized concerning Pratt & Whitney. We have a sampling right in front of me. Those were some of the parts that we seized in the Polaris case. A lot of them were spacers and seals. For example, we have a bearing seal spacer up there. It seals the engine. Its job is to prevent oil and air from igniting. The ones we seized were bogus, counterfeit. They were made in Virginia and Florida.

The bogus one sold for about $100. It was made out of steel. The real one sold for $700. It was made out of a composite material called jettite. We removed over 100 of them from service. I should say the FAA removed them from service. Our case revealed them and brought it to the forefront.

We also have seal rings. They seal engines off from gases. There were about 700 bogus ones manufactured. The real ones sell for $190; the bogus ones $70. We do not know how many are in service.

Parts like hub compressor bushings and tie rod bushings, showed up all over. There are four tie rod bushings per engine and when they wear out, there is vibration. There were 500 bogus ones. Some of them were installed. The real ones cost about $300. Very troubling in this case were the packaging and labeling that we found. You will look at the packaging and labeling, and see it is marked Pratt & Whitney. It has the Pratt & Whitney eagle on it. It has Pratt & Whitney numbers on it. Those labels were printed in Manhattan from a local printing company, and the stamps on the boxes came from a copy center. They are bogus. They look real, but they are bogus. In one case, it is somewhat interesting that one of the giveaways on the label is that the Pratt & Whitney eagle is not flying across the horizon but flying into the ground. Rather telling.

Senator COHEN. Should that have been called to the attention of the FAA?

Ms. SCHIAVO. Yes, it was.

We brought some starters from the Classic Aviation case. This is one of the earlier cases that we worked. These starters, for example, sold for around $5,000 to $7,000, while the legitimate ones on the generator sold from $12,000 to $16,000. The starters were overhauled by Air Advantage, and you will hear on a second panel from the individual who signed off on the tags on many of these parts. He was, of course, later convicted by one of our cases.

The bogus starters cost $6,000 to $8,000 and the real ones cost $12,000 to $18,000. The trouble with some of these starters—and there is another one on the chair—is, besides the fact that they failed, they were filled with metal particles, and on the third try they blew the oil seal. An airworthiness directive was issued.

We have some other parts. For example, over here we have a combustion liner assembly. It is bogus. It was made in Taiwan. It arrived without the cooling holes in it, coincidentally, and they were drilled in by a repair station. Regarding the outer shell alone, the bogus one costs about $5,600, the real one about $22,000. It is used on a Lear jet, and it was also used on planes in the Turkish Air Force. The Turkish Air Force did not have a repair station, we understand, to drill the holes, and two of those engines failed in flight. If you look at the little holes at the top, you can tell they were added later.

Senator COHEN. Basically, we have many parts being manufactured abroad and sold in this country?

Ms. SCHIAVO. Yes, we do. We have many parts that are being manufactured abroad, but we also have a domestic problem. The problem is, whether these parts are manufactured abroad or domestically, they are brokered literally around the globe. We have been called by law enforcement authorities in other parts of the world. We have even worked on a case with New Scotland Yard. These bogus parts are everywhere. The real parts are manufactured everywhere, so why would anybody think that the bogus ones would not be manufactured everywhere? Once you have the drawings and specifications out there, that is literally all you need to make a copy.

Many of these things look real, but they are made out of the wrong materials and have the wrong coatings, and that is what poses the problem.

We have many other parts, and in the interest of time, I will just let the Committee look at them at will. We have, for example, bolts. Bolts may look simple and unimportant, but bolts are vitally important. If you look at any of the incident and crash statistics, you will find that fasteners and bolts do, indeed, bring down planes. We have some up here, for example, leading edge slat bolts, where the real ones sell for $58 apiece. The bogus ones sell for $38.

There was a problem when the repair station drilled a hole that was improper, and the purpose of the hole was to allow the proper oil and lubrication to go through the bolt. Those were on commercial planes, Kiwi and Fed Ex and, I should mention, the FAA's own planes. When we were trying to get a handle on the size of this problem, because one of the things we faced when we were working these criminal cases is everybody would ask me a very funny, rhetorical question. They would say, well, how large is the problem that you do not know about? And that is a very difficult question to answer because, by definition, if we do not know about it, we cannot answer that.

We decided to answer that problem, so we embarked on a series of audits that would put a number on the size of the bogus parts problem. One of the audits that we did looked at the FAA's own parts bins. The FAA, as you know, but many people may not, actually operates a fleet of planes, and so it is similar to a commercial air carrier. In FAA's own parts bins, our estimates were that 39 percent of the parts were suspected unapproved parts. In response to that audit, FAA did a 100-percent review of their parts. They are over 80 percent done. Of the parts they have reviewed so far, only 16 percent of the parts were retained and are usable. That represents a $6 million problem for the FAA. What did they do with the rest of the parts, other than the 16 percent? FAA scrapped them. So, if it is not a problem, if it is not an issue, if it is just a paperwork problem, we have got a $6 million scrap problem.

I will give you an example of the difficulty that people have reported with the FAA. For example, our auditors went out to Oklahoma City because we had been working an investigation on some bogus brakes. They decided to begin the audit with these brake pads.

The auditors went to check out the brake pads with the person at the FAA. Mr. Weintrob, at the end of the table, was there and saw what occurred firsthand. They found the box of brakes, and, indeed, they were not labeled. They were suspected unapproved parts. Since it was late in the day they were going to take the issue up the next morning.

They went back the next morning, and those brakes simply disappeared. No one knew where they went. No one knew what happened to them. And to this day, we have no idea where those brakes went. That was the very first part we hit, that we asked about, when we went to Oklahoma City. Gone.

Now, you will find in my statement that we have submitted for the record, as well as in the exhibits, all of the audits that we have done on this problem, putting a face and a number on the size of the bogus parts problem. The FAA did try to pick apart our audit numbers, but they cannot.

For example, the NTSB had reported a number of incidents, so the FAA sent their people back out to re-examine the FAA reports, and they determined that there were other issues, such as maintenance, involved. The FAA tried to do the same thing in our audits. They went back out and said they looked at parts, but what, in fact, occurred is they looked at similar parts or other applications and concluded that many of them were "close enough."

That is not good enough, and we are confident that our numbers were good. Here is what our audits found in a very brief summary.

For example, we did a study—this was not an audit; this was an inspection—on FAA's responsiveness to suspected aircraft maintenance and design problems. Now, this is important because this is what use is made of the service difficulty reports (SDR). And you will see in a moment that a critical part of this parts problem is now being pushed off into the SDR reporting method.

We found, for example, that no formal system exists to ensure aircraft problems do not fall into a black hole, and there was no adequate mechanism to enable the FAA to recall incidents other than by engineers' memories. Their service difficulty reports were incomplete, with omissions of information as high as 98 percent.

The transport airplane directorate made little use of and had no requirements for trend analysis. We did a study on the certification and surveillance of domestic and foreign repair stations, and this is one of the ones the FAA took issue with, again, trying to put a number on the size of this problem.

Of the parts obtained from brokers, 95 percent of them were suspected unapproved parts. On parts obtained from manufacturers, the number fell to around 43 percent. There are 4,900 domestic repair stations. We looked at a small sampling. The FAA took issue with the size of the sample. We volunteered to go out and look at as many repair stations as they wanted, and we think our sampling was accurate. We looked at hundreds of parts in that audit.

In our audit of the parts manufacturing approval process, we found a problem in that it was not being enforced. The FAA admitted this in a statement they published in the Federal Register in February of 1995. FAA basically said, Warning, warning, we now intend to enforce this law, so step up and get your parts manufacture approvals (PMA) now because we are going to enforce.

When we started the audit of foreign manufactured aircraft parts, FAA informed us they simply did not enforce the rules. The pricing of FAA aircraft parts was the audit I told you about where we looked at the FAA's own parts bin. Of the parts FAA looked at, all but 16 percent ended up in rejection. A couple other audits that we mentioned in the statement, looked at FAA's oversight of designated mechanics examiners and aviation inspections. What they found in the ramp inspection area was questionable.

Now, I would like to turn very briefly to what the numbers tell us, and I have a few more charts to show this more graphically.

We have done a number of cases, investigations which have led to prosecutions and convictions around the country, but the problem is centered in a few areas. As you can see, these parts show up in California, Florida, and Texas most prevalently, but they do show up in other parts of the country, and are very widespread. It is sad to note that the fourth category is "Unknown." It is hard to tell where the parts are being used, but California, Florida, and Texas have the biggest problem.

The next chart illustrates what these parts are used for. Sixteen percent are for the Transport category, 35 percent are in the Multiple category—that means they are used in many applications, transport, commuter, general aviation—and 13 percent are in the Commuter category. So, two-thirds of the parts involved in these SUPs cases are used on planes that carry passengers, that carry the public, not to mention you have Rotocraft, General Aviation, and Unassigned, which basically is, a "who knows."

Senator COHEN. Just because you picked out four states that seem to have major concentrations of problems, that does not mean that the problem is not distributed throughout the country.

Ms. SCHIAVO. Oh, no. We found cases literally all over the country.

Senator COHEN. So the planes that may have unapproved parts fly from Maine to California. It is not simply those planes in the States of California, Texas, and others that are the problem areas.

Ms. SCHIAVO. Oh, no; and that correlates largely with the number of operators in those States.

The next chart is very telling because it shows the growth of suspected unapproved parts cases. Many people tell you it is not a growing problem; that it has been pretty steady.

There have been reported cases, I found in one article, as early as 1957. The parts problem has been around a long time. Indeed, if you go back in the records, there is even a case concerning a bogus parts problem when the Brooklyn Bridge was built. This is not new. Criminal activity has been around a long time. But the reporting of SUP cases certainly has increased. Unfortunately, it did increase, and the only correlated one main factor was our work in the area. But there are certainly a lot of cases there, and as you correctly noted, a large number of those represent Category 1 and Category 2 problems.

The next chart I would like to show you are the reporters of the SUP cases. Who reports these SUP cases? Who is supposed to report these SUP cases? And where does the enforcement come from?

As you can see, our agents reported the largest number of these cases in 1994. It is the year for which we have the statistics. Repair stations reported 77 cases, just a little less than us. And the FAA came in third. This is very telling because we only have 50 street agents. We only have 50 people out there, and they only spend one-fourth of their time on bogus parts cases. Compare that with the FAA, which has 3,000 inspectors and only reported 73 cases. We think this shows a real problem in reporting these cases.

This conclusively shows that there are many SUPs not making it into the databases when our 50 agents can come up with more than the repair stations or FAA's inspectors, and certainly more than the air carriers.

To answer one of your final questions for the purpose of this hearing, we have come to the conclusion that there are some problems at the FAA. Now, I should say that we have had excellent, excellent cooperation from the FAA field personnel. Literally in every one of our cases, FAA field personnel have worked with us hand in hand. FAA inspectors across the country have worked with our agents and have been a tremendous, tremendous asset and have given us much support. But we learned the same thing you did. Many of them help us and do not really want their help to be known. They do not want to be lauded for their efforts. They are afraid, and it is sad that they are scared of their own Government for enforcing the law. But we have found the same thing you have found.

I did want to point out that the field personnel have been excellent and there is not one case that we have made that they have not helped us make the key determinations.

But we have had problems from very strange statements coming out of headquarters, including activities, as you mentioned, to make the numbers look artificially low. And we find that troubling. I can understand people do not want to alarm anybody, but it is our job to enforce the law. It is our job to find out the numbers. We must find out what is wrong and report it. By artificially suppressing the numbers of SUPs cases, you do not accomplish anything.

Recently, for example, a memo was issued that changed the definition of a suspected unapproved part. Now, under this new guidance issued in March 1995, many of these cases right on the table in front of you, cases including ones which have an airworthiness directive issued, will no longer be reported to the SUPs database. This removes many of the scrap issues as maintenance issues. What do the persons who are responsible for this memo want us to do now with the scrap issues rather than put them in the SUPs database? They want us to report them as SDRs. You can see the result. Malfunctions or defects, as maintenance issues, will not even go in the SUPs database.

Senator COHEN. And "SDR" stands for service difficulty report?

Ms. SCHIAVO. That is correct. The problem for us is, that we get our criminal cases from the SUPs database. We work with the FAA. We report what we find to the SUPs program, and we get cases from there. When they go into the SDR, as I have mentioned, our studies show you get into a black hole. This is going to be the end of a major percentage of criminal prosecution on suspected unapproved parts.

I do not know why someone would do that. Perhaps you can ask. There has been a reluctance or failure to refer cases to us. We have had many problems. For example, on one major case we made, the case was referred to us by Congress. Even though the FAA knew about it, Congress sent it to us. We have had problems with one region that does not refer cases at all. In fact, they take them directly to the U.S. attorneys, which is a violation of their own orders and guidelines and the jurisdiction. We often get the cases after the trail is cold. In some, we have gotten the cases after FAA has made the initial contacts to the alleged perpetrators. Since nobody is going to sit around and wait for us to come and pick up their counterfeit and criminal paperwork, we get the cases after they are cold.

As I mentioned, we have had some jurisdiction problems. We even had one very strange situation where one person at the FAA used the Vice President's Reinventing Government plan to try to get us out of the SUPs cases entirely, to completely remove our SUPs jurisdiction and investigative jurisdiction and give it to the FBI.

There was another effort on a related case which concerned the FAA cult training investigation, to get me removed entirely. We have had some very strange action come out of the FAA.

I have been a lawyer for 15 years and in law enforcement for about 12, and, frankly, I have never seen anything like it. Most people clamor and ask for and complain about not enforcing enough. I have never had somebody complain, other than in this instance, that you are enforcing too much or that you are enforcing the law. I have never heard that. And I have done a lot of different kinds of criminal cases, everything from drug cases to organized crime. I have never had anybody tell me, no, do not enforce the law.

We have had many obstacles in cooperation with the FAA, and I would suspect that at least one major obstacle might be removed, hopefully soon. But we have had some obstacles, and we hope that their attitude improves. Their public statement has showed a very poor attitude towards this problem, and we hope that improves.

I do want to give the FAA credit for some things they have done, and I will briefly mention our recommendations. They have started a SUPs notification file in this database. This database is very, very important. We cannot underestimate the importance of finding the statistics on the SUPs, getting them reported, and then investigating and acting on each SUPs case. Any activity which decreases the reporting of SUPs is only going to hurt the enforcement effort to get bogus parts off the airlines.

Second, the advisory circular on detecting and reporting of suspected unapproved parts was a very good start. That was in August 1991. Their suspected unapproved parts program guidance was very much needed. There is additional guidance that needs to go out, but that was a good step.

They have an advisory on scrap parts. Again, that is very important. That is a huge problem. I cover that in my statement. The trouble is that it is advisory, and as your staff found out, it is not being followed.

The actions in concert with the industry are excellent, and we encourage them, applaud them, and want them to keep going. We are dismayed to learn that they are going to stop their training seminars for suspected unapproved parts this summer. That is very unfortunate because that has been very crucial in getting the industry to report these parts.

Our recommendations include acknowledging that unapproved aviation parts are a serious problem; allowing standard part numbers to be used only for parts, not used in critical applications; regulating distributors and brokers; improving marking requirements for aviation parts; standardizing the paperwork and traceability of aviation parts—that has been a huge problem; and issuing guidance regarding the thousands of parts currently in inventory that came from non-approved sources. Now, this last problem is going to boil up because of the PMA amnesty issue. You have unapproved parts out there, and what are you going to do with them? FAA scrapped them, at a cost of $6 million. This problem is rampant throughout the industry. You have to clarify the regulations. You have to improve the targeting of inspections of repair stations and at least do some unannounced inspections.

You will hear later about the problem with inspections. Everybody knows when they are coming. You have to maintain a file of SUPs that have been reported and investigated. You have to notify the aviation industry of the unapproved substandard or bogus parts. As long as there is a requirement for surveillance of foreign-manufactured aviation parts, do it. Don't have a law on the books that you are not going to enforce.

Establish easily accessible systems where repair stations and others can identify manufacturers with proper PMAs. That is now not possible to do. Modify the FAA inspection procedures to investigate the record reviews procedures used in conducting criminal investigations. And include the fraud indicators previously submitted to the FAA.

Establish minimum core requirements for inspections, and promptly refer criminal activities to the OIG for investigation.

Senator COHEN. Ms. Schiavo, I am advised that we are going to be voting shortly, so if you could conclude now, we will turn to Mr. Kubic.

Ms. SCHIAVO. All right.

Senator COHEN. I will announce to the audience that apparently in about 10 minutes, or 5 minutes now, a series of votes will begin. There are 6 stacked votes, which means that we will have to recess for a period of about an hour. It will interrupt the presentation of the subsequent panel. So if you could conclude, we will hear from Mr. Kubic before the bells go off.

Ms. SCHIAVO. All right. That is fine. I just have a couple other suggestions, and I can submit them for the record.

Thank you.

Senator COHEN. Thank you, Ms. Schiavo.

Mr. Kubic?

TESTIMONY OF THOMAS T. KUBIC,[1] SECTION CHIEF, CRIMINAL INVESTIGATIVE DIVISION, FEDERAL BUREAU OF INVESTIGATION

Mr. KUBIC. Thank you, Mr. Chairman. I am pleased to be here today, also, and to provide you the FBI's view on the problem of unapproved aviation parts. I have a prepared statement for the record, and I will be—is it time to vote?

Senator COHEN. We have 15 minutes, so why don't you proceed?

Mr. KUBIC. OK. I would request that my statement be allowed to be entered into the record.

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[1] The prepared statement of Mr. Kubic appears on page 112.

Senator COHEN. Your full statement will be included as part of the record.

Mr. KUBIC. By way of background, the FBI's investigations into unapproved parts is based on our jurisdiction to work fraud against the Government cases as well as mail fraud and wire fraud. Our participants and partners in this investigative effort include the Defense Criminal Investigative Service, DCIS, the DOT OIG, and individual investigative agencies for the various military branches.

The FBI's view is that the key to addressing some of this problem is through a task force effort composed of representatives from the various agencies. We also believe that the most successful method of investigating these cases is a greater use of undercover efforts. This approach has been strongly encouraged by FBI headquarters and also fully supported by the Department of Justice. We believe that the undercover effort is essential to get beyond the initial brokers and to the people who are actually providing the bogus parts.

The common schemes that we have identified include the certification of parts as rebuilt when, in fact, nothing has been done to improve the part. Also, there is a good deal of reverse engineering of parts to resemble the original manufacturer's part and then selling them as original manufacturer parts.

Broker purchases of subcontractor overruns is a problem that we have also seen to a great extent. The result is that these overruns are often proven as defective, and there is almost a guarantee that the defective part does enter the system.

Lastly, an item that you mentioned, the scrap parts which are recycled are often fatigued, worn, damaged parts that enter the system.

I think it might be helpful to walk through one of the investigations at this point with the time remaining to summarize the case and to follow through the only part that security would let me bring into the building this morning and give you a little history of what this part is and how it fits.

In late 1992, a case was initiated by the Richmond Field Division that was predicated on complaints from the Defense General Supply Depot that has seen a large number of parts being returned to them as unusable and unserviceable. Because of this poor quality, some analysis was done, and a number of companies that had been providing these non-approved parts was identified.

By May of 1993, an undercover proposal had been drafted which specified the type of business that the FBI would participate in with the DOT and also with the DCIS. This business became known as Supplies and Services Unlimited. A DCIS agent served full-time as an undercover agent posing as a broker.

We found that the predicated subjects were more than willing to engage in conversation and to offer their services, often during the first contact. I have a brief tape that I could play which records the contact of the undercover agent.

Senator COHEN. Do you have a written transcription that can be available to the press?

Mr. KUBIC. Yes, I do.[1]

Mr. KUBIC. Two points I would like to make. Clearly, the subject who was contacted by the female undercover agent knew that he was not supposed to do business with this individual, having had no business history with her; then, secondly, that even given that point within a short time he wants to know if he can take an order.

I have a brief follow-up conversation which runs about the same length of time, and in this conversation, we have the broker who pretends not to know the ins and outs of the business, being basically schooled by the manufacturer as to what is the best way to do business.

Senator COHEN. The undercover agent is the broker?

Mr. KUBIC. The undercover agent is the female broker.

[Second tape played.][2]

Mr. KUBIC. So once again we have the manufacturer encouraging the broker to pattern her activity on that which is already ongoing.

The scheme that we are getting to is the overrun situation where a legitimate order is produced and then there is an overrun of 10 or 20 extra parts, which are then disseminated or sold to the broker.

The results of Operation Barrel Roll were that of the 19 parts that we purchased, 12 were found to be not airworthy. The one part that I have in front of me is the landing gear block for a DC–8, and if we have the time, I will walk you through the purchase of this, or I can wait until——

Senator COHEN. I think you perhaps ought to wait. I think we have to break here so that we do not interrupt the flow of the testimony. We are going to have to take about an hour from this point.

The Committee stands in recess.

[Recess.]

Senator COHEN. The Committee will come to order.

Ladies and gentlemen, let me again apologize for the inordinate delay. We had 6 back-to-back votes which have consumed this amount of time. There will be more votes scheduled for early this afternoon, so we will try to move as quickly as we can to get as many panels in this morning.

My intention now will be to go until about 1:15 or 1:30 and then break for a half hour for lunch, and then come back in at 2:00. So why don't we proceed.

Mr. Kubic, you were about to give us a run-through on this particular part. Perhaps you could summarize the nature of the investigation dealing with this particular case.

Mr. KUBIC. Yes, sir. The part I have in front of me is a landing gear block. It is for a DC–8. On the chart in front of you, you can see the position of the landing gear block when the landing gear is down and the aircraft is either landing or taking off.

To just recap a little bit, there were three companies that were involved in our purchase of this part. The undercover company was Supplies and Services Unlimited in Richmond, Virginia. What they did was they submitted a request for a bid to a company called D&D Air in San Clemente, California. D&D Air came back and said, yes, we have a new part. They faxed a reply back, and they also listed a purchase price at that time of $4,855. Normally, this part is about $12,000 to $14,000.

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[1] See page 127.

[2] See page 128.

So the agents went ahead, and they ordered the part. They received the part, and they had it tested. Basically, this part failed because the dimensions were wrong, and as a result of the wrong dimensions of the part, there would be excess wear which would eventually lead to the failure of this part.

Going behind how D&D Air, which is the broker, also obtained this part, we found that a company called Perfect Profiles and Contours was, in fact, under contract to produce this for a licensee of McDonnell-Douglas. They were in the testing and the prototype stage and had not produced a part which met the licensee's specification. Because of that, and what they did was Perfect Profiles sold it to D&D, and eventually it came into our possession.

The owner of D&D and the corporation itself have both been convicted in Richmond, and the owner has been sentenced to 2-and-a-half years. The statute that was used to convict the owner and the corporation was the RICO statute. Basically, we established that through his operation and his business, he had committed a series of mail fraud and fraud-by-wire violations.

The thing that made this work or the representation made to our undercover business was that the part was an original equipment manufacturer certified part. This is the document that was basically sent to the undercover operation to say this part meets all specifications. So to the extent that this makes it a paper case, that is accurate. The false certification makes this scheme work.

The company had net sales of about $6 million and profits of about $2 million. In addition to the jail term and some fines, over $12.5 million in inventory was seized and forfeited to the U.S. Government. The facility was also seized and forfeited to the Government.

Senator COHEN. How much is the $12.5 million really worth if they are producing items which are really not up to specifications?

Mr. KUBIC. That is a good question. Ninety percent of the parts at D&D were of this nature. The actual value was substantially less than that. The facility itself, however, was worth about half a million dollars, and that was also seized and forfeited.

I think there was a lot of focus earlier this morning on civilian aircraft. I would like to point out also that the same situation exists with regard to military aircraft. There are a number of examples that we can discuss later or that I would submit for the information of the Committee which illustrate the same problem does exist in the military side of the house as well.

Thank you.

Senator COHEN. Does that complete your testimony?

Mr. KUBIC. Yes, sir.

Senator COHEN. Let me say to the panel, in view of the time constraints I am going to move along fairly quickly and I will try to ask questions that you could answer in a very short fashion.

Ms. Schiavo, the FAA has indicated that about 1,100 cases of suspect unapproved parts have been reported since 1989. Is it fair to say that you do not consider this to be a fair representation of the actual number of SUPs that are actually in the system?

Ms. SCHIAVO. No, I most certainly do not consider it to be a fair representation of SUPs. And, by the way, that is not the number of SUPs. That is the number of SUP reports. Any one report could represent hundreds or thousands of parts. It is clear that that does not represent the number of SUPs in the system, because if we put in the system just the number of SUPs we found, for example, in the FAA's own parts bin, there would be far, far more in the system. By the way, those SUPs found in FAA's parts bin were not reported.

We know that that is not a fair number. For example, our agents reported more than the FAA did with its 3,000 inspectors, more than the airlines did with their thousands and thousands of people, more than anyone else. So if we are the only ones taking this reporting system seriously, it is woefully inadequate.

Senator COHEN. So basically we could have one report dealing with that particular air landing gear as such which could involve thousands of parts, which, in fact, could be either counterfeit or falsely certified to meet the various strength requirements and so forth. You could have one report encompassing 100,000 items. Is that correct?

Ms. SCHIAVO. That is correct.

Senator COHEN. You indicated you had the full cooperation of the FAA inspectors during your audits and investigations. Did you have any case of any interference with a criminal investigation at any time?

Ms. SCHIAVO. Yes, actually, I am sorry to say we do. I cannot discuss the details of that case because that case is ongoing and is under investigation by the Federal Bureau of Investigation and the Defense Criminal Investigative Agency. I am sorry to say that that situation has permeated what occurs in these cases. I am sorry to say that because of the investigation of which the FAA management is fully aware, I and several other people in my office, are unable to even meet with the Associate Administrator for Regulation and Certification because he is under investigation. I have to say that taints everything. When somebody in my office is under a cloud—granted, everyone is presumed innocent until proven guilty, but I remove them and assign them to something else.

So that has been a problem. I do not know the details. I am not the investigative agency on it. But that has colored a lot of issues because we have to wonder what comes out of that office. Is it coming out because that is what is best to resolve this issue of parts? Or is it coming out because someone is in trouble or thinks they might be in trouble—I do not know anything about the details; I am not the investigator—and that is tainting what comes out of that office?

I do not know, but I am sorry to say I am aware of a situation like that.

Senator COHEN. Now, the FAA's advisory circular on the disposal of scrap and unsalvageable parts, how well do you think it is working?

Ms. SCHIAVO. It would work well if it was mandatory. In the exhibits to my statement, we show a number of examples and there are some on the wall that I understand your staff took. That is the kind of scene you see out there all the time, piles and piles of parts.

Nobody is required to render them unusable. Nobody is required to chop them up, melt them down, and totally destroy them. The advisory circular is not working because people are not voluntarily doing that.

Our own Defense Department, in response to a GAO audit, said that they could not chop them up because it was cost-prohibitive.

So it would work if it was mandatory. It is just not at this point.

Senator COHEN. Basically we have these bins being stocked with items like this, and the parts are being purchased in bags such as the one in the photograph on the far right. They are cutting the red tag off the bags which would allow you to trace where these items came from, for example, which repair shop, in fact, labeled them as being unserviceable. And the ports are now entering the market, right?

Ms. SCHIAVO. That is correct.

Senator COHEN. We have talked a lot about the unapproved aspect of these parts. What is the safety implication? We have not talked about the threat posed to the flying public.

Ms. SCHIAVO. That is very interesting because we deal with that all the time. You and I certainly think it is a safety issue. I know the pilots think it is a safety issue. The industry thinks it is a safety issue. But we have heard time and time again from the FAA that safety is not compromised.

It probably would surprise you to know—and it surprised us to find out—that there are not any guidelines regarding safety issues. What is a safety problem? When is safety compromised? Give us the guidelines. There are not any.

It becomes a safety problem or safety is compromised when certain people in the FAA say it is compromised. And, in fact, in their own internal analysis of the situation, they have said you cannot draw any conclusions on SUPs because we do not have the definition of "safety problem."

So it is impossible to answer that question. I propose you ought to answer that question right now until we come up with some Government definition of safety, which seems pointless—why don't we answer that question with common sense. Many, many people in the industry have said, losing an engine is a safety problem. It is to me, it is to a pilot. I am a rusty pilot, and I think losing an engine is a big deal. Pratt & Whitney thinks losing an engine is a big deal. Let's use common sense. Of course, this is a safety problem. You cannot say it is not. There is an entire body of Federal regulations set up to regulate this area. Is it for nothing? Of course, it is for safety. Of course, it is a safety problem. Let's use common sense.

Senator COHEN. You indicated also that on the memo that was circulated on March 1, 1995, which provides guidance to the FAA inspectors on the definition of suspected unapproved parts, the memorandum stated that parts that are produced under the FAA-approved quality control system, the so-called PAH system, or repaired by an FAA-approved repair station which are determined to depart from the type design were never intended to be investigated under the SUP program. And the memorandum added that these parts should not be reported as suspected unapproved parts, but, rather, as maintenance-related reports.

I think you have made it very clear that such a shift in definitional terms is going to complicate the investigations into these suspected unapproved parts substantially. Is that not correct?

Ms. SCHIAVO. That is correct.

Senator COHEN. And what about the enhanced compliance program that the FAA has announced. I think it is referred to as the new enhanced compliance policy on suppliers. Some feel that this is simply an amnesty program.

Ms. SCHIAVO. Right. Like I said, it is strange that it has to be announced in the Federal Register that the FAA is now going to enforce the law, so listen up, folks, and get ready.

But we want to see the law enforced. Whether they are starting now and it is coming a little late, we support enforcing the law.

Senator COHEN. But what does the amnesty period, in fact, do to investigations currently underway? Are those in any way compromised?

Ms. SCHIAVO. That is the problem. We do not know. No one coordinated with us about our ongoing criminal cases before announcing this amnesty program. We are concerned that it will, indeed, affect some of the ongoing criminal cases. We have had situations in the past where activities, mid-course corrections by the FAA, have jeopardized our criminal cases, and we are concerned about that.

We are also concerned, as is the industry and I understand there is at least one lawsuit, that this PMA amnesty program might actually cause more problems by giving counterfeiters or people who produce the parts a license to do it.

Senator COHEN. Mr. Kubic, let me turn to you. You testified that the FBI's primary responsibility investigating unapproved parts really is the enforcement of our criminal laws as they generally relate to fraud and false statements, and you have indicated that safety and airworthiness and testing really are beyond the scope of the authority of the FBI. But also in discussing this undercover case called "Barrel Roll," you did highlight that 12 out of the 19 parts—we talked about 63 percent—that were bought by the undercover agent failed the airworthiness testing. Is that not correct?

Mr. KUBIC. That is correct, sir.

Senator COHEN. So even though you are not focusing on safety, you have determined that technically unsafe items are circulating throughout the industry itself.

Mr. KUBIC. That is correct. And the reason for the testing, of course, was to go behind the representations that the parts that we purchased were, in fact, airworthy and met all of the requirements to be utilized. So it is kind of as an aside that that information does get developed during the course of the criminal investigation.

Senator COHEN. You indicated that you also confiscated about $12.5 million worth of parts which might properly be called junk at this point in terms of their serviceability for aircraft safety. Did you make any effort to determine what is currently out in the marketplace emanating from this particular place of business?

Mr. KUBIC. Yes, we did. Working with the FAA, we were on scene at this particular location for several months, tracking each and every part that had gone through D&D, and we are doing appropriate follow-up to make sure that those parts and notice was given to the end user of those particular parts.

Senator COHEN. And the FAA cooperated fully?

Mr. KUBIC. That is correct.

Senator COHEN. My understanding is they did, in trying to get warnings issued to people who might have purchased these items from D&D?

Mr. KUBIC. That is correct.

Senator COHEN. You also indicated, in your written testimony at least, that the U.S. district court judge in imposing a sentence upon these individuals would have departed from the established Federal guidelines and actually given a much stiffer sentence had the individual not provided substantial assistance pertaining to other companies. Are the existing penalties, in your judgment, sufficient to deter those who are engaged in this conduct?

Mr. KUBIC. Yes, sir. I think if we structure, working with the Department of Justice, if we structure RICO-type indictments with the penalty of 20 years, I think that is more than adequate. I see a greater willingness on the part of the Department of Justice to seek indictments for a major criminal offense and to classify people who are involved in this type of activity as racketeers.

Senator COHEN. Ms. Schiavo indicated that she had full cooperation from those in the FAA at the investigative level. I assume the same thing is true with respect to the FBI that the FAA fully cooperated at the investigative level with your investigators. Is that correct?

Mr. KUBIC. Yes, they did. They were outstanding.

Senator COHEN. I want to thank the panel. The testimony that has been given by you, Ms. Schiavo, and, you, Mr. Kubic, is very helpful. We intend to follow with the second panel. Mr. Schaefer, I think you should remain obviously at the table. We will hear from Mr. Schaefer and then also the individual who was convicted of having engaged in the sale and distribution of parts such as these.

Thank you very much, and I appreciate your patience again in waiting for us to return.

I am sorry. Hold your seats. Senator Levin is just arriving, and he would like to ask some questions.

Senator LEVIN. I want to understand more about the safety risks that are involved in the unapproved parts. The FAA has said that unapproved parts pose a safety concern, but not a significant safety problem. Would you agree with that characterization?

Ms. SCHIAVO. No, I would not, because the FAA has no guidelines to determine what is a safety problem in regard to SUPs. They simply have no internal guidelines on what it is, and they have concluded because of that they cannot draw any conclusions on the SUPs program.

I think we ought to use a common-sense approach to safety. Maybe they have made statements such as losing an engine is not a problem. You have got another one. I think that is not a common-sense approach. I think you could say that is a safety problem. The industry says it; pilots say it. Let's just use common sense.

Senator LEVIN. Now, has there been an aircraft accident involving major commercial passenger aircraft caused by an unapproved part?

Senator COHEN. Could I just interject here? Would you also distinguish between accident and incident as far as FAA regulations are concerned?

Senator LEVIN. And we are talking about inside the United States.

Ms. SCHIAVO. Inside the United States there have been no major carrier crashes, no deaths occurring because of bogus parts, to our knowledge. I get that from the NTSB indices and the FAA indices. There have been other incidents, accidents——

Senator COHEN. National Transportation Safety Board.

Ms. SCHIAVO. That is correct. An incident is not an accident. Something happens but they are able to remedy the situation.

Senator LEVIN. OK. Now, the National Transportation Safety Board has also given us a list of priorities as to what are the most important things to be done in terms of improving air safety; is that correct?

Ms. SCHIAVO. As far as I know, that is correct.

Senator LEVIN. And is the unapproved parts issue one of those?

Ms. SCHIAVO. No, not to my knowledge.

Senator LEVIN. In your statement you said that, "The counterfeiting of aircraft parts is so widespread that we must unavoidably draw this conclusion: if it is part of an airplane, it *could* be bogus." [Original emphasis.]

First, I want to see if I understand the terms that you are using. The term "counterfeit" has been used and the term "bogus" has been used. Are those interchangeable?

Ms. SCHIAVO. Pretty much so. Counterfeit refers to a part that is passed off—like these Pratt & Whitney parts that are new and are passed off as the real thing. Bogus has included a lot of things, including scrap that is reworked and put out on the market. At one time, it might have been an original, new, approved part, but it has received things that make it an unapproved part, and those parts fall in the category of bogus as we use it. There is no official definition on what those are. Those are the terms that we use.

Senator COHEN. Could I interrupt? Would production overruns by an FAA approved manufacturer also fall in the category of bogus?

Ms. SCHIAVO. Yes. We have tried to include the list of the various kinds of things that we encounter in Exhibit 1. The industry has grappled with that and has tried to categorize them as well. There are many different kinds of parts that fall into bogus.

Senator LEVIN. My question, though, is, do you use the words "bogus" and "counterfeit" interchangeably?

Ms. SCHIAVO. No. I use counterfeiting as one example of bogus parts.

Senator LEVIN. Do you use the words "bogus" and "unapproved" interchangeably?

Ms. SCHIAVO. Bogus and unapproved, yes. Unapproved parts, not suspected unapproved parts but unapproved parts are bogus parts.

Senator LEVIN. All right. Now, if a manufacturer of a part sells—let's say an engine part—instead of selling it to the engine manufacturer who has the approval process, sells that part directly to the airline, is that an unapproved part?

Ms. SCHIAVO. If they do not have the approval to do so, yes.

Senator LEVIN. So if you have a manufacturer out there, Apex Manufacturing Company, that makes the part, and they sell all the parts to the engine manufacturer, and if the airline, when it comes to replacing the parts, buys directly from Apex instead of the manufacturer, that would, in your lingo, be a bogus part?

Ms. SCHIAVO. If they do not have the approval to do so.

Senator LEVIN. That is right. My assumption, it is the engine manufacturer who puts together the parts who has that approval process. In that case, which is apparently fairly common where the airlines now purchase directly from the parts manufacturer, that would be called a bogus part in your lingo?

Ms. SCHIAVO. In our lingo, if they do not have the approval and if the user cannot achieve the testing to get it certified, it would be called a bogus part.

Senator LEVIN. If the user tests it for airworthiness but it has not been approved, is that a bogus part?

Ms. SCHIAVO. There are exceptions that would take that out of the bogus part category, but yes, that is correct.

Senator LEVIN. So it would not be a bogus part if it is airworthy?

Ms. SCHIAVO. And if it is tested.

Senator LEVIN. Yes.

Ms. SCHIAVO. If it is tested and receives proper approval, that is correct.

Senator LEVIN. So even though it does not have that certification by either the manufacturer or by the engine maker, it is still not a bogus part providing the airline tests it for airworthiness?

Ms. SCHIAVO. Yes.

Senator LEVIN. Now, do the airlines now test each one of those parts for airworthiness that they get directly from the manufacturer? As far as you know, is that the process?

Ms. SCHIAVO. Do they test each and every one? I do not know. I cannot say that.

Senator LEVIN. Would they have to test each and every one in order to avoid the description you just gave of being bogus? When you say providing it is tested by the airline, I want to know do you mean test every one?

Ms. SCHIAVO. Do they have to test every one? No, not to my knowledge. That is the whole point of the regulatory scheme. That is why you have the approval and the testing and the tags attached and you know the trail on the part.

Senator LEVIN. Yes, but I want to go back because I think the use of the word "bogus" is unclear to me, and I want to understand what you are saying.

If it is not certified by the engine maker, it is a spare part, a replacement part, it comes directly from the manufacturer to the airline, very common——

Ms. SCHIAVO. Right.

Senator LEVIN. You are saying that still may not be called bogus by you if it is airworthy and if it has been tested.

Ms. SCHIAVO. Correct, if it has been tested to the FAA specifications.

Senator LEVIN. Is the test that you are referring to a test of every part?

Ms. SCHIAVO. On ones that do not have the proper certification, yes.

Senator LEVIN. So if every part that an airline gets from a manufacturer, unless they have tested every part, if they get it from the manufacturer who does not have the certification process directly, that would be called a bogus part in your lingo?

Ms. SCHIAVO. If it is a part for which approval is needed. Are you getting at the TSO aspect?

Senator LEVIN. No. I am getting into parts for which you need to get certification.

Ms. SCHIAVO. Right. There are standard parts, if that is what you are getting at.

Senator LEVIN. No, I am not.

Ms. SCHIAVO. Either you have the testing from the manufacturer and the manufacturer is approved, or if the manufacturer is not approved, and the airline wants to use the part, they have to do the testing and get the necessary certification.

The key in all of this, the reason that makes this a problem, is not just to be a pain about the paperwork. It is that somewhere along the line you have got to get the testing satisfied.

Senator LEVIN. I am not disagreeing with you or arguing with you. I am just trying to understand what you are saying.

Ms. SCHIAVO. OK.

Senator LEVIN. Let me go back and just see if I can get this clearly in my understanding. You have a part of which an engine manufacturer, let's say, uses hundreds of a particular part. That engine maker has the certification responsibility in my hypothetical.

Ms. SCHIAVO. That is right.

Senator LEVIN. The part comes from a manufacturer called Apex. The engine goes to the airline. The airline uses the engine, and now the engine needs some replacement parts. Typically, as I understand it, the airline will go back to Apex to buy the part. As a matter of fact, if they do not go back, probably the parts would not be available readily. For whatever reason, they go back directly to Apex. They get that same part from Apex that Apex had supplied to the engine maker.

Now, my question is: Is that part in your description, because it has not been certified by the engine maker, a bogus part?

Ms. SCHIAVO. Technically, yes.

Senator LEVIN. And that is the way you use the term "bogus"?

Ms. SCHIAVO. Right. But do we have criminal cases like that right now? No. We have not made a criminal case on that.

Senator LEVIN. I am just trying to find out what label you apply to that part, which, as I understand it, is a very common process—that airlines buy the replacement parts directly from the manufacturer of the part instead of through the engine maker. Nonetheless, if it was not acquired from the engine maker who has the certification process, that is lumped together with the label "bogus" in your vocabulary.

Ms. SCHIAVO. Right.

Senator LEVIN. OK. It seems to me, then, we have two different kinds of problems, one of which is where we have a counterfeit, what I would call a counterfeit part, which, as I understand it, is illegal, a violation of criminal law. Is that correct?

Ms. SCHIAVO. Yes.

Senator LEVIN. OK. And then you have an unapproved part—well, let me start over again. You have got a counterfeit part which violates criminal laws, which is one variety of bogus parts.

Ms. SCHIAVO. That is right.

Senator LEVIN. It is a sub-category of bogus parts. Then you have got the rest of the parts which are not counterfeit, which come directly from the parts manufacturer frequently, which are unapproved because they did not come through the approval process of the engine maker, for instance, but they are, it seems to me, a different category of problem from the counterfeit. Would you agree with that?

Ms. SCHIAVO. Absolutely.

Senator LEVIN. All right. Now, what percentage of unapproved parts are counterfeit parts and what percentage of them are simply unapproved parts but not counterfeit parts?

Ms. SCHIAVO. I do not know that. I do not have the statistics on that. It is impossible to tell you. We do not have all the information in the database.

Senator LEVIN. Do you have an estimate? Do you have a hunch, a guesstimate? Would you say most of the parts that are unapproved are counterfeit or most of them are not counterfeit?

Ms. SCHIAVO. It is impossible to say. We do not know. Our criminal cases do not give an accurate picture because we prosecute the worst offenders.

Senator LEVIN. Now, you did do a study, you indicated, of the EPA's part bins, I think.

Ms. SCHIAVO. FAA.

Senator LEVIN. I am sorry, the FAA's part bins.

Ms. SCHIAVO. Right.

Senator LEVIN. I did not quite understand the numbers that you gave us at that time. Can you give us the numbers of that again?

Ms. SCHIAVO. Yes. From the parts that we looked at—and the gentlemen who were in charge of that audit are at the table and can answer specific questions, we estimated 39 percent were suspected unapproved parts.

Senator LEVIN. Could we slow down a bit?

Ms. SCHIAVO. Thirty-nine percent.

Senator LEVIN. Thirty-nine percent of all the parts in the FAA bins were unapproved?

Ms. SCHIAVO. That we reviewed, yes.

Mr. DECARLI. It was 39 percent of the parts that we looked at.

Senator LEVIN. That you looked at.

Mr. DECARLI. That we looked at as part of the audit, 39 percent did not have the documentation, and we could not tell whether or not they were approved parts.

Senator LEVIN. Well, wait a minute. You could not tell whether they were approved or not. I thought you said that they were not approved.

Ms. SCHIAVO. No. It was suspected unapproved parts.

Senator LEVIN. They may or may not have been approved.

Mr. DECARLI. That is correct.

Senator LEVIN. Thirty-nine percent of the parts you looked at. Now, what percentage of the parts in the bin did you look at?

Mr. DECARLI. It was actually a very small percent.

Senator LEVIN. Can we just take it one step at a time?

Mr. DECARLI. OK.

Senator LEVIN. One percent, 2 percent?

Mr. DECARLI. It was probably 1 percent. It was, as I said, very small.

Senator LEVIN. OK. So let's say you looked at 1 percent of the parts in an FAA bin. Was it all one part?

Mr. DECARLI. No. It was many parts, and actually it was not a bin. It was the entire warehouse operation.

Senator LEVIN. You looked at a lot of bins?

Mr. DECARLI. Right.

Senator LEVIN. With a lot of parts.

Mr. DECARLI. A lot of parts.

Senator LEVIN. You took some samples from each of the bins?

Mr. DECARLI. That is correct.

Senator LEVIN. And your guesstimate might be that you might have taken 1 percent of the parts out of the whole warehouse?

Mr. DECARLI. It was not a high percentage. It was a very small one.

Senator LEVIN. Could it have been a small as a tenth of 1 percent?

Mr. DECARLI. Yes, it could have been.

Senator LEVIN. OK. Of that sample from each bin, you then decided or determined in some way that 39 percent you could not determine were approved?

Mr. DECARLI. That is correct.

Senator LEVIN. Is it possible that some of them were approved?

Mr. DECARLI. Possible. If you went after the documentation, it is possible you might be able to find that they were approved, or if you look at them and test them, you might find that they are, in fact, airworthy parts.

Senator LEVIN. OK. Now, of the 39 percent, then there was another percent. There was a part of that which——

Mr. DECARLI. There was not another part of the 39 percent. The next percentage was subsequent to our work. FAA looked at its inventory. They went back and looked at 100 percent of what they had in the warehouse. Of the parts that they looked at, I think it was 52 percent that they decided did not have the documentation. At that point, they were suspected unapproved parts because they did not have the documentation.

Senator LEVIN. I see.

Mr. DECARLI. So that was about 52 or 54 percent of everything they looked at.

Senator LEVIN. Now, of the 39 percent that you found that you could not determine if they were approved or not, how many of those were counterfeit?

Mr. DECARLI. I have no idea. We did not look to see whether they were counterfeit. We would not know.

Senator LEVIN. There was no way of determining whether or not they were counterfeit.

Mr. DECARLI. No.

Senator LEVIN. Some of these look—can't you tell from looking at some of these whether they are counterfeit or not?

Mr. DECARLI. I think in a lot of cases you have to do destructive testing to find out whether parts are counterfeit.

Senator LEVIN. Are there any cases you can just see from looking at a part whether it is counterfeit?

Mr. DECARLI. Well, I have a nut in my hand that I could tell whether it was counterfeit or not, mainly by destructive testing where you cut it in half and can look at the nut.

Senator LEVIN. No. My question is: Are there any parts that you can tell visually by looking at it, without a destructive test, as to whether or not it is counterfeit or not?

Mr. DECARLI. Probably a trained mechanic can, but I cannot.

Senator LEVIN. Pardon?

Mr. DECARLI. Probably a trained aviation mechanic can, but I cannot.

Senator LEVIN. Everyone is shaking their head yes over there.

Ms. SCHIAVO. We have actual cases, for example, the Pratt & Whitney, the Polaris case, or the Schaefer case where a trained mechanic did spot the difference in the color on one of the spacers. On the others on the table, you will see you cannot.

Go ahead.

Mr. SCHAEFER. Sir, could I interject, please? One of the problems we have in investigating these types of cases, is that every case must be looked at individually. You have to make a determination of the facts based on where the part came from, and the paperwork. We have to go back to the regulation. Some of these cases are very complicated. We cannot say that in Case A it is always identical, or in Case B it is always identical. Some parts can be determined by their markings, but we cannot substantiate that until we get further into the investigation.

Senator LEVIN. My time is up.

Senator COHEN. Let me see if I can just go back and recap before we move on to the next panel. With respect to bogus, we have the counterfeiting situation in which we have the Rolex watch that you can buy on Main Street or, I should say, Fifth Avenue or down here on Connecticut Avenue. That is the counterfeit that looks like the legitimate thing, that will probably not hold up in all probability like a real Rolex.

You also have a situation where bogus or suspected unapproved parts come from, in fact, a legitimate supplier who is a subcontractor of an FAA approved manufacture. For example, the airline goes directly to the subcontractor for the replacement part, but the subcontractor may only have the authority to sell the parts to the manufacturer. The problem is the parts may not have the same technical specifications. Is that not one of the problems?

Ms. SCHIAVO. Or the necessary testing was not done.

Senator COHEN. Or the necessary testing. The second problem is overruns? When we have, for example, a manufacturer who requests a subcontractor to produce, let's say, 100,000 of these parts, but then the subcontractor produces an extra 50,000, and those 50,000 are sold out into the open marketplace, those also have not been necessarily subject to testing, quality control or certification requirements. Is that not the case?

Ms. SCHIAVO. That is correct.

Senator COHEN. So part of the problem is we do not know whether the 50,000 extra parts that have been manufactured by someone in the business of manufacturing these has, in fact, fulfilled all of the testing requirements that the FAA regulations require.

Ms. SCHIAVO. Or fulfilled the legal requirements including getting the necessary PMA.

Senator COHEN. So if I can then sum up, the FAA is not enforcing existing regulations in your judgment, number one.

Ms. SCHIAVO. That is correct.

Senator COHEN. Number two, that manufacturers, suppliers, repair stations, and airlines are not fully complying with existing regulations.

Ms. SCHIAVO. Or existing advisories.

Senator COHEN. All right. And, three, unapproved parts are fairly rampant throughout the aviation inventories based on your investigation?

Ms. SCHIAVO. Yes, they are. They are quite rampant. I do want to add one thing about spotting these parts. The United case was very interesting because United was a very good law enforcement partner in that case, and the mechanic that spotted it noticed the difference in color. That was just the tip of the iceberg in the difference in these parts. They were made of different materials, different coatings, and different hardnesses. To make a note on this, sometimes these things are easy to spot and they are widespread. But in that case, mechanics in other airlines and other operators did not spot it because in the Polaris case alone, hundreds of these parts were in service. So not only did we have the problem that there are hundreds of them, but they were not so easy to spot. It is not fair to say you can spot them frequently because trained mechanics in airlines miss them.

Senator COHEN. As a matter of fact, we have had some trained experts look at these particular blades, which, in fact, came from that barrel that you see up there on the wall, and the experts have advised us, with a little bit of cleaning up, these could go right back into the inventories with very little ability to detect the difference between a certified part and this bogus part. This is a piece of salvage that should have been melted down. Instead of advising that this be melted down, we should mandate, in my own judgment, that these parts be melted down because they can get back into the system. That is the danger, as I see it, that is involved.

Senator LEVIN. Could I just clarify one point?

Senator COHEN. Yes.

Senator LEVIN. I think you testified that the FAA or someone at the FAA asked you not to enforce the law on unapproved parts.

Ms. SCHIAVO. Yes. I said we had had difficulty enforcing the law, and we have been criticized from time to time about our rigorous enforcement efforts. I said that surprised me because I had been a prosecutor for a number of years, and in law enforcement even longer, and it astonished me that someone would complain about rigorous enforcement.

Senator LEVIN. I think you testified that somebody told you not to enforce the law.

Ms. SCHIAVO. No, I did not say somebody told me not to enforce the law. I said they complained about our rigorous enforcement.

Senator LEVIN. So you are not alleging here that someone told you not to enforce the law.

Ms. SCHIAVO. Specifically said do not enforce the law? No. They complained that we were out on a—not a witch hunt—a crusade.

Senator LEVIN. And just one more time on the counterfeit parts issue. The counterfeit part is one subset of the unapproved part.

Ms. SCHIAVO. Yes.

Senator LEVIN. But you do not know and have no estimate as to what percentage of unapproved parts are counterfeit parts. Is that correct?

Ms. SCHIAVO. I do not have an estimate on that. That is one thing we would hope that a more improved SUPs reporting program and a better SUPs database would provide. But we have to get people to report them first. It should not be the OIG reporting more cases than anybody else. You have got to get other people to report them, and then we might know.

Senator LEVIN. Do you know whether or not a significant percentage of unapproved parts are counterfeit parts?

Ms. SCHIAVO. Whether or not a significant percentage of suspected unapproved parts, not unapproved parts?

Senator LEVIN. OK.

Ms. SCHIAVO. A significant percentage of suspected unapproved parts are counterfeit? Probably not. A significant percentage of unapproved parts are, because unapproved parts are not approved. They are counterfeit, they are bogus, or they are scrap.

The difference is if you just have a suspicion, then you have to find out.

Senator LEVIN. Right.

Ms. SCHIAVO. But if you know it is unapproved, that is——

Senator LEVIN. Let me clarify the three different categories. Do you have any idea of what percentage of suspected unapproved parts are unapproved?

Ms. SCHIAVO. No.

Senator LEVIN. And do you have any idea what percentage of unapproved parts are counterfeit?

Ms. SCHIAVO. Yes. most of them, if you say unapproved parts, are not the real thing. If it is an unapproved part, it is either reworked scrap—and in these cases, these are counterfeit even though they are scrap because they had a phony data plate affixed to them. We have got the phony data plates there.

Senator LEVIN. I thought you said before that the part which went directly from Apex to the airline was not approved.

Ms. SCHIAVO. That is correct. But I am telling you about some of the other things——

Senator LEVIN. No, but now you are saying—when I asked you what percentage of unapproved parts are counterfeit, you said most of them.

Ms. SCHIAVO. That is right.

Senator LEVIN. But don't we have huge numbers of parts which go directly from the manufacturer of the part to the airline, which is not a counterfeit part?

Ms. SCHIAVO. No, no. Until they get the necessary approval, that is not a legitimate part.

Senator LEVIN. I am just talking about counterfeit. I just want to use the word "counterfeit." The Apex-manufactured part that goes directly to the airline instead of through the engine company in my hypothetical, is that a counterfeit part?

Ms. SCHIAVO. It is not what it is represented to be. Yes, technically it is. It is technically bogus. It is counterfeit. It does not have the approval. It is not the real thing. It has to have the approval.

Senator LEVIN. We know it is unapproved by definition because it did not go through the engine company.

Ms. SCHIAVO. That is right.

Senator LEVIN. But I am asking you, are you now using the word "counterfeit" to apply to that part? Because a few minutes ago, I do not think you did. You distinguished between that part and a counterfeit part. Now you seem to be including the part which is manufactured by the same company that ships it to the engine company, ships it directly to the airline, you are now saying that part is a counterfeit part as well as an unapproved part. Is that correct, technically?

Ms. SCHIAVO. Technically, yes.

Senator LEVIN. And you are using the word "counterfeit" to include that part?

Ms. SCHIAVO. What I usually use the word "counterfeit"——

Senator LEVIN. This morning.

Ms. SCHIAVO. This morning, as I said, I broke it out very clearly on this chart.

Senator LEVIN. And how are you using is this morning? Are you using the word "counterfeit" this morning to include the part which goes directly from Apex to the airline? That is my question.

Ms. SCHIAVO. This morning have I called that "counterfeit"? No, I am not calling that "counterfeit," but it is an unapproved part. Is it technically counterfeit? Yes. All you have to do is get the necessary approval. Why is it so difficult to obey the law?

Senator LEVIN. I am not disagreeing with you. I am just trying to find out how you are using words, because it is very important whether we use "bogus" or "counterfeit," because people are rightly concerned about their safety.

Ms. SCHIAVO. That is right.

Senator LEVIN. And there is a greater safety problem, I think you would agree, would you not, from a part which is a counterfeit part than a part which instead of going through the engine manufacturer happens to go from that same part manufacturer to the airline? Isn't that right?

Ms. SCHIAVO. Absolutely. I could not agree with you more.

Senator LEVIN. So it is safety. So it is safety that we are worried about, and language becomes very critical when it comes to people's perception of their safety. If they think most of the parts that are going into airplanes are counterfeit parts, not just not unapproved parts but counterfeit parts which could not be approved, or illegal or criminal parts, then they are going to have one kind of a reaction.

Ms. SCHIAVO. That is right.

Senator LEVIN. I am not saying they should not be concerned over their safety. People should be concerned over their safety. We want the parts to be approved. That is what the regulations require, and that is what we are going to insist on. But it is a little bit different to suddenly call all of those parts "counterfeit" parts. That is a new label that you are applying when you call of the unapproved parts counterfeit parts, which is what you now seem to be saying, that technically every unapproved part is a counterfeit part. That is a very different impression from what you gave a half an hour ago.

Ms. SCHIAVO. We are getting very technical here because technically they are unairworthy. That is the problem. Look at the list. We have got all kinds of counterfeit parts. We have got all kinds of bogus parts. We have got all kinds of unapproved parts. And this is just what we have come up with. The industry will give you a different list, and the FAA will give you a different list. This is what we have come up with. This is how we have tried to sort out the problem, and the industry will have a different list. The bottom line is, without the approval, whether you call them bogus, whether you call them counterfeit, whether you call them a SUP or an UP, until they get approval they are unairworthy.

Senator LEVIN. There is a major difference. It is the same part that is being used. I am not saying it should not be certified. The law requires it to be certified. But when you say that all parts which have not been approved are not airworthy, I think you are——

Ms. SCHIAVO. I do not say that. That is the FAA's regulation.

Senator LEVIN. The law says that.

Ms. SCHIAVO. Yes. That is not me.

Senator LEVIN. That all unapproved parts are unairworthy. As a matter of fact, are they?

Ms. SCHIAVO. Well, I——

Senator LEVIN. In your judgment. You have gotten into this. I just want your judgment. In your judgment, are all unapproved parts unairworthy? I just want your common-sense review, not the technical reading of the law. In your view.

Ms. SCHIAVO. All right. My view is yes, they are unairworthy until they receive the necessary testing and regulation because the Federal law is there for a purpose.

Senator LEVIN. OK.

Ms. SCHIAVO. And I am never, never going to advocate that because you think it might fly——

Senator LEVIN. I would not either.

Ms. SCHIAVO. —that it is airworthy. No. Test.

Senator LEVIN. I would not either. I would not either. But are you then saying that all unapproved parts are unsafe?

Ms. SCHIAVO. All unapproved parts? They probably would not be unsafe if you test them and tell us, but we do not know. And I would never say that they are all safe.

Senator LEVIN. I am not asking you that question.

Ms. SCHIAVO. Because we do not know.

Senator LEVIN. I am asking you whether you are saying here today that all unapproved parts are unsafe. Is that what you are telling us?

Ms. SCHIAVO. We do not know. They do not have the approval.

Senator LEVIN. So you are not saying that all unapproved parts are unsafe.

Ms. SCHIAVO. If they were tested——

Senator LEVIN. No, let me just see if I can get an answer to that question.

Ms. SCHIAVO. No, let me finish. Let me finish. If you would test them and find out, if you would test them and find out, they might pass. They might. But you do not know.

Senator LEVIN. Thanks.

Senator COHEN. Judge Ito is going to intervene here and see if we cannot bring this to a conclusion. [Laughter.]

Senator COHEN. It is fair to say there is a large volume of suspected unapproved parts in the aviation inventories? And part of the difficulty is that parts sold directly to the airlines by a subcontractor have not necessarily gone through the quality control process; therefore, there is no assurance that the parts are airworthy, and you are not in a position to say they are safe or unsafe? You turn to the regulation, which declares them to be unworthy, period.

Ms. SCHIAVO. That is right.

Senator COHEN. With that, I will dismiss this panel and call the next panel. Thank you very much.

Mr. Kish, will you stand and raise your right hand?

Do you swear that the testimony you give will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. KISH. I do.

Senator COHEN. Ladies and gentlemen, let me explain the situation we are in now. We are going to have this panel testify. I am advised that at 1:20, there will be a series of 20 back-to-back votes, which means for all practical purposes that we cannot possibly complete the hearing this afternoon.

What I propose to do is to complete this panel, and then call upon the Administrator of the FAA and at least allow him to make a brief presentation so he will have an opportunity to either rebut, clarify, or disagree with the testimony that has been presented.

We are going to allow you to make a full presentation, and it is very important evidence that you will be providing. I will discuss with the staff whether we can work out something, but I think what we will try to do between now and 1:20 is to complete this panel, and I certainly want to allow the Administrator to have an opportunity to make a presentation, in all fairness.

So, Mr. Kish, why don't you proceed?

TESTIMONY OF GABRIEL KISH,[1] FORMER REPAIR STATION OWNER

Mr. KISH. Mr. Chairman and members of the Subcommittee, my name is Gabriel Kish. I am a former owner of two repair stations in South Florida.

Aerostar Aviation applied for a limited repair station certificate in August of 1987 to overhaul and repair constant speed drives, and Aerostar submitted its procedure manual and all required FAA paperwork.

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[1] The prepared statement of Mr. Kish appears on page 130.

On or about October 15, 1987, Aerostar Aviation was granted a limited repair station certificate.

Senator COHEN. Wait, slow down.

Mr. KISH. I am sorry.

Senator COHEN. Otherwise, no one will hear what you are saying.

Mr. KISH. OK. We got a limited repair station certificate on or about October 15th of 1987. Our designated inspector from the local Flight Standards District Office in Fort Lauderdale delivered our certificate, and he walked through the shop. No facility inspection was performed; it was just a walk-through.

At this time, we did not have the equipment to properly overhaul the type of equipment for which we were granted a certificate because we were in the process of hooking it up and calibrating and everything. He didn't pick on that. You know, he didn't have the knowledge even to know what the machine was doing or what it was supposed to do.

In 1988, we applied for a Class I engine accessory rating, which was an upgrade to perform overhaul on more parts. The certificate was upgraded. No inspection was ever performed. They just told me to come down and pick it up, the certificate, and we didn't have the equipment for that either. Eventually, we gathered everything together, but at the time we applied for it, it wasn't in function.

After that, there was no further inspections that were conducted by the FAA. Our local inspector appeared on two other occasions to come and have coffee and to try to make a lunch date with one of the secretaries, but there was no inspections that were performed.

In 1989, we applied for a change of location, change of name, address. Aerostar Aviation was in pretty bad shape. We were dealing in illegal parts, stolen, bad overhauls, that type of thing.

In 1990, Air Advantage received its new certificate. We moved the facility. The certificate was hand-delivered by a different inspector. He didn't do anything. He just came in, gave us the certificate, and left. Air Advantage was involved in stolen parts and overhaul problems. There was occasions we went to a repair station or a machine shop and we had some gears made, 6 or 7, to put in the constant speed drive. We used 2 of them and the other 6 were discarded. They just didn't work.

Air Advantage dealt with many brokers in the Miami area, California. They all knew the situation with the FBI and the FAA. There was never any concern with buying parts or sending work for overhaul, under the understanding that there was no warranty. You would get the part and you did whatever you had to do with the part, and the business—they were sending parts, these starters, generators, and CSD's. That is what our primary business was.

In 1991, the FBI issued a search warrant. They inspected Air Advantage, took the documents, and certain parts that were unlabeled. Anything with a dataplate, they didn't remove, just the parts that were unlabeled or sitting on the bench. The following day, the FAA came in, one of the inspectors, and he did a walk-around. I told him what happened. He was looking for paperwork. I told him the FBI has all the documents.

We walked in back of the rebuild shop and there was a starter similar to the one sitting on this bench. It was in a box. He asked me where I got it from. I told him Classic Aviation sent it up for overhaul. He just asked me a few questions about it—bogus parts, stuff, this and that. I told him that was a Classic Aviation starter and if he wanted to take it with him, he's more than welcome to have it. So he said he would like to take it. I signed the release so he could take it back to the local FSDA office in Fort Lauderdale.

He called me a couple days later and said they seized the part. He came back the following day and asked me if I would be willing to surrender my certificate. I told him, yes, sure. I signed it over to him, and then he left. Following—maybe a couple days later, they issued an alert stating all Air Advantage parts—hold it for deposition; it went nationwide to all the brokers. And we had a couple starters left. Brokers that wanted them, we went it to them and I don't know what they did with them.

The parts distributors—I mean, they have no fear of the FAA. They will buy; they don't care. You know, their opinion is they are not going to come there anyway, and if they come, they are not going to let them in to look around or anything.

That concludes the testimony. Any questions, I would happy to answer for you.

Senator COHEN. I will try to be very brief, Mr. Kish. During the 3-year period that you were involved in these illegal activities, how many total visits did the FAA inspectors make to your repair site?

Mr. KISH. One official, two unofficial; one official visit, two unofficial visits.

Senator COHEN. And during the two unofficial visits, at one time they were simply talking to you, trying to make a date with one of your secretaries?

Mr. KISH. Yes, and a lunch date.

Senator COHEN. Did the inspectors, in your judgment, have the training necessary to determine whether you were dealing with bogus parts?

Mr. KISH. No. not at all, none of the parts. I don't think they knew what they were looking at.

Senator COHEN. Did they look at any of the——

Mr. KISH. No. They walked through. They never stopped once at any of the parts, except at the end one of the inspectors—since I think he worked at Air Research, he knew what a starter was.

Mr. KISH. These items in there, this half of the table.

Senator COHEN. Should any of the activities that you were involved in have been immediately detectable by the inspectors?

Mr. KISH. We had four different kinds of speed drives together. We were robbing parts from Peter to pay Paul, you know, switching parts. Parts were laid out in bags. It was just—at that point, it was just a mess. There was no organization whatsoever. Paperwork was out of place, files were stuck here.

Senator COHEN. So a trained inspector would have picked up very quickly that it was a mess?

Mr. KISH. You didn't even have to be really well-trained.

Senator COHEN. Let me just ask you a couple of final questions. Based on your own experience, do you think that the unapproved parts market is getting bigger and the problem is getting worse?

Mr. KISH. Sure. Well, yes, it is getting more consolidated. The network of the good old boys is getting closer so that it is not as—you know, it is held together in a group. Instead of a group of 12, there is probably a group of 6 with different areas. Before, like I say, you have 10 brokers working together; now, they have 5.

Senator COHEN. Basically, you are saying that the criminal and civil penalties were no deterrent to you at all?

Mr. KISH. No.

Senator COHEN. And no deterrent to any of the distributors?

Mr. KISH. Well, maybe now there is some, but that fear factor is not there.

Senator COHEN. What is the likelihood of getting caught under the current circumstances?

Mr. KISH. I don't know what investigations are going on, but the majority of the brokers have very good paperwork trails. I mean, traceability is very well detected. I mean, they could go back and prove where they got it from and then eventually if the FBI or whatever investigation is conducted—if they really trace it, they could get them, but I don't know if they have got the manpower all the way down the line.

Senator COHEN. In other words, those who are engaged in this business today are engaging in the falsification of documentation?

Mr. KISH. That is to make the part legitimate. Say, if you buy a starter, a stolen starter—some guy drops it off at your shop or your facility. You just go to South America or Europe, pick up a piece of paperwork, and say I bought it down there. You have to send an agent down there to verify it. There is nothing there and it is up to them to prove it is stolen. And then they send them to repair stations and they take the serial numbers off, etch out numbers, so it is cleansed.

Senator COHEN. Is it a fair statement that you think this problem is fairly widespread in terms of the people who are in the business now?

Mr. KISH. Well, yes, because of the money that is involved. There is a lot of money to be made. On one transaction, you can make $70,000, $80,000.

Senator COHEN. I am sorry?

Mr. KISH. On one transaction, you could possibly make $70,000 to $80,000 to $90,000, depending on which part you deal with.

Senator COHEN. As I indicated, these little blades here——

Mr. KISH. Well, yes, but there are parts that are much more valuable, you know.

Senator COHEN. But one of these new could be as much as $1,500.

Mr. KISH. Right.

Senator COHEN. And we bought a bag of these for $1.30 apiece.

Mr. KISH. But traceability on blades like that—it is very easy to trace a blade. It is much harder to trace a part like a starter or a constant speed driver, a generator, or a fuel control, because you could intermix all the parts. You could take one housing from one part and put it on another part and it is washed.

Senator COHEN. Mr. Kish, thank you very much for coming forward. You have pled guilty to the charges, have you not?

Mr. KISH. Yes.

Senator COHEN. And cooperated fully with the FBI on this matter?

Mr. KISH. DOT, yes.

Senator COHEN. Mr. Schaefer, I have at least one question for you. I mentioned in my opening statement that there were a lot of credible individuals within the industry who were contacted by the Subcommittee to obtain their views on the unapproved parts problem. These individuals included both current and past employees of the FAA, air carriers, and repair stations, and many of them were unwilling to come forward and be publicly identified for fear of reprisals.

Last night, I received a statement that was submitted for the hearing record by the Professional Airways Systems Specialists, which represents some 10,000 FAA employees, and the statement says that the FAA rarely takes corrective action to remedy identified problems or stop the production of unapproved parts, and that in some instances there have been significant attempts by the FAA to delay the process, to mitigate the findings, to impeach safety inspectors who conduct investigations on bogus parts or cover up such investigations.

I would like to ask the question, based on your knowledge of the aviation community, does this come as a surprise? Is the statement unwarranted?

TESTIMONY OF HARRY SCHAEFER,[1] ASSISTANT SPECIAL AGENT IN CHARGE, OFFICE OF INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION

Mr. SCHAEFER. I believe that is a true statement, sir. Many times, the FAA inspectors—and I must say there are some outstanding FAA inspectors who are totally dedicated to this issue, agree with the problem, and want to get these parts out of the aviation marketplace.

Unfortunately, a lot of them are severely criticized when they work with us. There have been other times when they were not given ample time to do these investigations because they are not fast investigations. They take a tremendous amount of time because of the paperwork involved. There is a lot of records research and things of that nature. They just are not given enough time, and this gets back to the problem of no full-time sub-coordinators or full-time FAA inspectors dedicated to the issue of assisting us in these investigations.

There is a training process they must go through. We have to be very careful when we conduct these investigations. If it is a safety of flight issue, we absolutely must, under all circumstances, allow the FAA to take their action first to make that determination. So unless we are trained and can work better together to know how the system can work so we can both benefit from it, remove the parts, you know, ultimately leading to the prosecution of the individuals, I don't know that we are ever going to be as successful as we should.

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[1] The prepared statement of Mr. Schaefer appears on page 132.

Senator COHEN. Have you had personal experience with people who are knowledgeable in the field who are unwilling to come forward?

Mr. SCHAEFER. Yes, sir, absolutely. They are afraid of the criticism or reprisals. In a sense, your career could be over if you disagree with certain members of management who say this isn't a problem, and then you go out. They try to make the individual look like the renegade inspector, and that is very unfortunate.

Senator COHEN. Are there cases where they are actually reassigned before they can complete investigations?

Mr. SCHAEFER. That, I don't have specific knowledge of, but many times they may rotate through certificates or something of that nature.

Senator COHEN. Mr. Schaefer, I will submit some questions to you for the record.

Senator Levin will be returning subsequently, and we will move on to the third panel. Thank you very much.

Senator COHEN. I will call the third panel now, and here is how we will proceed. I will call members of the aviation industry; first, Mr. Paul Beach, who is going to submit written testimony on behalf of the Aerospace Industries Association; Mr. Michael Rioux, who is the Vice President of Air Transport Association; Mr. Walter Coleman, who is President of the Regional Airline Association; Mr. Edward Glueckler, who is President of the Airline Suppliers Association; and, finally, Mr. James Frisbee, who is a well-known, highly respected aviation consultant who spent some 38 years in the airline industry, including 6 years as the manager of quality assurance at a major airline.

Gentlemen, in the interest of time, I am going to ask you to submit your written statements for the record, and I will pose some questions. We will allow the Administrator of the FAA, Mr. Hinson, to come forward before the 1:20 mark and have a chance to present his side of the case.

TESTIMONY OF CHESTER PAUL BEACH, JR.,[1] ON BEHALF OF THE AEROSPACE INDUSTRY ASSOCIATION; MICHAEL F. RIOUX,[2] VICE PRESIDENT, ENGINEERING, MAINTENANCE, AND MATERIEL, AIR TRANSPORT ASSOCIATION; WALTER S. COLEMAN,[3] PRESIDENT, REGIONAL AIRLINE ASSOCIATION; EDWARD J. GLUECKLER,[4] PRESIDENT, AIRLINE SUPPLIER ASSOCIATION; AND JAMES FRISBEE,[5] AVIATION CONSULTANT

Senator COHEN. Does anyone here not have a written statement and want to make a brief opening statement?

[No response.]

Senator COHEN. Let me turn to you, Mr. Frisbee. You have testified in your written statement that air carriers do not report findings of unapproved parts to the FAA, and you further stated that it is common that management at air carriers give direction that under no circumstances are such reports to be made.

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[1] The prepared statement of Mr. Beach appears on page 137.

[2] The prepared statement of Mr. Rioux appears on page 159.

[3] The prepared statement of Mr. Coleman appears on page 174.

[4] The prepared statement of Mr. Glueckler appears on page 178.

[5] The prepared statement of Mr. Frisbee appears on page 192.

Can you tell us a little more about that?

Mr. FRISBEE. Well, air carriers suffer from a certain amount of paranoia with regard to reporting anything that might be detrimental to their market share. Now, that is understandable because in many instances things sometimes get blown out of proportion. However, there is a voluntary disclosure program that has been worked through between the FAA and air carriers that works very well and is very capable of solving problems.

But the problem with the unapproved part, or the perceived unapproved part—for some reason, air carriers are very reluctant to report those. Once the report is made, depending on what the part is, you may have that part on your fleet. I believe the perceived fear is that, once done, if the part is on the fleet, you have got to get it off, which may mean grounding of aircraft. It may not only mean the grounding of your aircraft, but the grounding of perhaps a whole series or model of aircraft, depending on how widespread the unapproved part distribution was.

Senator COHEN. So, in other words, once an airline finds out that it has an unapproved part or parts that have been integrated into its aircraft that are now in the skies flying, there is in fact, a great disincentive to call that to the attention to the FAA, which might, in fact, come in at that point and say shut it down. We are not sure whether this would affect the safeworthiness of the aircraft itself. We don't know whether it is unacceptable at this point because we simply don't know whether it is a bogus part or whether it is a counterfeit part, or whether it is salvage that has been made to look as if it is a new part. Therefore, the airline has a strong disincentive from reporting that.

Mr. FRISBEE. As you got into the discussion over what part is; the definition of a bogus, unapproved, and so on, and so on—everyone holds different opinions about what is the definition, what are we talking about here. When we worked a problem, we didn't try and put a definition on it. We looked at the situation at hand and said, after we knew what it was, this is "A," and then we said what it was, because people get confused over what you are talking about when you are talking about an unapproved part.

Senator COHEN. I think you indicated in your prepared statement that it is common that management at air carriers give directions that under no circumstances are these reports to be made. Is that correct?

Mr. FRISBEE. That is so, unfortunately, but then——

Senator COHEN. For the reasons we just discussed.

Mr. FRISBEE. But then I must say more that air carrier people do not talk to news media or anyone else without direct direction from management. I could not have done what I am doing today as a manager of quality assurance at Northwest. If I had done it on my own, I would have lost my job, and I know for a fact that there have been people at other air carriers, quality assurance managers at other air carriers, that have been told in no uncertain terms, you do not report unapproved parts to anybody; we will handle them in-house.

It is unfortunate. It is very unfortunate because it does skew the reporting statistics. Air carriers buy more aircraft parts probably than anybody else. They are also the most qualified at being able to find—even though there are lots of very creative, tricky people out there that will lie, cheat and steal to try to get parts into your inventory, sell you parts—air carriers are probably more likely to find them than anyone else. They have in-house QA operations that by and large are very proficient.

Senator COHEN. How do they handle an in-house situation? They have got an aircraft that they now have been told, has some suspected unapproved parts. The word is don't you or any other manager report this to the FAA; we will handle it internally and take care of it in-house.

How do they handle that?

Mr. FRISBEE. Do you want my experience?

Senator COHEN. Yes.

Mr. FRISBEE. I know how we did it at our airline, at Northwest. I never had a problem with Northwest with regard to that. If it involved pulling an airplane off the line, they would do that once they got the report.

Obviously, we would look at the part at hand and try to make a determination, is this a part that could cause an accident to occur. If it were and we—we had a couple of occasions where there were parts that wear on aircraft that we knew were unairworthy. I believe we grounded two of them at one time. One was in the Orient, and we had an unapproved starter on it because we had been notified by the IG's office.

The starter had come in-house. It had gone through our testing shop and was tested. It ran fine, but it was on an airplane and the airplane was grounded. As soon we found out where it was, the airplane was put on the ground until another starter was put on.

Senator COHEN. So it would make a difference, then, if you were able to determine where the suspected unapproved part—if it was one of these rings, for example, or a seal or a spacer—might be located within the aircraft. You would make an initial determination as to whether the part would not cause a lack of air safety?

Mr. FRISBEE. We would try and make that determination. A starter is easy to find. I could turn around at my desk to a CRT, and I could tell you exactly where every starter we had in stock was and what airplane it was on, and then very quickly tell you where the airplane was. If it was on an airplane, we would simply get hold of maintenance control and maintenance control would ground the airplane as soon as it got on the ground.

On the other hand, that is a serialized part. That is one that has capability of tracing. Harry doesn't have them here, but I gave him some rivets that we had obtained, had bought a lot of them through a distributor who had bought them from a manufacturer in California. They were found by a mechanic. They had cracks in the head. There weren't just a few; they were all cracked, had cracks in the heads that went all the way down through the rivet. They were structural rivets.

We had had them in stock for—I don't know; I think it was about a year-and-a-half. They had been used on the aircraft. There was no way to tell where. Rivets don't have serial numbers on them.

There was no way to do a trace of where they went on to the aircraft, so we simply purged the entire system of all the rivets that we had; unfortunately, not just those, but every other rivet that we had bought from that particular distributor. We purged the entire stock room and all the other stock rooms, notified the mechanics if they had them in their tool boxes and got rid of the whole lot, and then notified the distributor, don't ever sell us anything again.

Senator COHEN. Now, on page 2 of your Attachment 1 to your testimony, you state that the airlines sell parts and misrepresent their condition. Would you give me a brief clarification of that?

Mr. FRISBEE. That is the item on the letter that I wrote. Is that the one of August 17th, the first page?

Senator COHEN. Yes.

Mr. FRISBEE. Is that the one you are speaking of?

Senator COHEN. Page 2 to the attachment. You have an attachment.

Mr. FRISBEE. Yes.

Senator COHEN. It would be page 2 of that attachment labeled number 1.

Mr. FRISBEE. Item 19?

Senator COHEN. Right.

Mr. FRISBEE. "Airlines sell parts and misrepresent their condition?"

Senator COHEN. Right.

Mr. FRISBEE. Yes, that happens, that happens. There has been a problem that airlines had. When we first began to meet with regard to unapproved parts, it came as a surprise to many of us that many of the surplus parts that were sold into the industry, in fact, came from air carriers; that we were some of the biggest sellers. Many times, those parts went to surplus suppliers.

There is nothing wrong with that. The only problem with it was that many of them were going out the door and we were surprised at what we found. They were going out the door without inspection when they left the premises. At that time, I was working for Northwest. We immediately changed that procedure, and so did most other air carriers, so that they were inspected before they went out the door. But there were certain carriers that that was not done, and those parts are sold effectively by what we would call surplus supply.

Senator COHEN. It is one thing to say they are sold without being inspected, but another to say they are sold while misrepresenting their condition. What do you mean by "misrepresenting their condition?"

Mr. FRISBEE. A part is sold with a certificate on it. The certificate says the part is new or unused. It says the part is unused, meaning that it had shifted around the industry, or maybe sat on their shelf, but it had never been installed on an aircraft, an unused part. When a buyer opens up the package and finds that the part is not only used, but may have been used even to the point where it was on the verge of at its accepted limits, almost perhaps at its limitations for use—it was worn almost to the point where it was unusable, then it was misrepresented when sold. The problem was that these parts simply were not being inspected before they were sold.

When the QA people found that out, they went home, jumped on their surplus sales people immediately, and said from now on there will be no more parts leave this carrier unless they are inspected before they go.

Senator COHEN. Is that true of all airlines today?

Mr. FRISBEE. I can't say all.

Senator COHEN. That was your experience at Northwest, once the quality assurance people became involved?

Mr. FRISBEE. Once we became aware of it. Once we became aware that a problem, a trend, or whatever existed, we took action. Not only would we take action, but because of the interface between quality assurance people at air carriers, the word would go through the industry very quickly.

Senator COHEN. Mr. Beach, you testified that the documentary evidence for a parts manufacturing source and service history is relevant and not necessarily essential. I think you indicated that in most cases, an absence of documentation is not necessarily a strong basis to suspect a part is actually unapproved.

I guess the question I would have for you is are you saying that if a part cannot be traced to an approved production source, it is acceptable to install that part on an aircraft?

Mr. BEACH. Senator, if one can establish that by means of looking at the part number, the part configuration, physical appearance, and the other indicia that go along with documentation, that a part was manufactured by an approved production source, that it conforms to type design and is in condition for safe operation, I would say that we do not understand that there is any present regulation which would prohibit its installation merely on the basis that there may be some documentation which might be lacking.

There are a variety of sources of evidence, if you will, to establish that a part is airworthy for installation on a product.

Senator COHEN. So you do not need the documentation, then. You can take a look at it, have your inspectors determine whether this is "real or Memorex," either by looking at it visually or inspecting it. Even if it does not have the documentation, it is OK to go forward because you have made a determination that the documentation is not critical?

Mr. BEACH. As a general proposition, yes, sir. There is one area of significant limitation in the case of "life-limited" parts, that is, parts which generally are serialized and tracked by individual serial numbers and are "life-limited." In our experience, most operators and most users of our products will require that they have the hours and the cycles documented so that they know the history of that part before they will use it.

Senator COHEN. Do the other members of the panel share that view, that as long as you are satisfied with either an external examination, or other kinds of certifications, that it would be acceptable to go forward and install these without the documentation in aircraft?

Mr. Rioux?

Mr. RIOUX. Well, it is incumbent upon the operator to make a determination that the part is airworthy; so in that light I would agree with Mr. Beach's comment.

Senator COHEN. Mr. Coleman?

Mr. COLEMAN. I would say, too, we have to find some assurance that it is airworthy. Documentation is generally the accepted one, but we need to have some proof that is valid that it is airworthy.

Senator COHEN. But you do not have the documentation.

Mr. COLEMAN. It will have to pass some other test that we are satisfied is appropriate to assure its airworthiness.

Senator COHEN. So you would have to conduct the actual tests on the individual items?

Mr. COLEMAN. No; some other measure rather than a test. That is, if you have evidence it is serialized, or if you have some other reference you can use to assure its airworthiness—whether it has accompanying paperwork is generally accepted, but if there is some other measure you can use to assure airworthiness, it ought to be used.

Senator COHEN. Why do we need the certification in any event under those circumstances? Why bother with the certification and the documentation that it has been approved? Why do you need it? If you can make the determination on your own, why do we have to have the FAA involved at all?

Mr. COLEMAN. Well, the FAA provides oversight. The people who manufacture these items and the people who operate them are able to do that in a very safe way, but the FAA because of their regulatory requirements provides the oversight. So we do need the oversight. However, if these airlines are going to stay in business, they are going to provide this service.

Senator COHEN. My understanding is that getting the certification for FAA approval in the manufacturing process may take such a long period of time that a number of airlines are just going directly to manufacturers who have not been approved to buy the parts. They are making the determination that these parts in fact measure up to their own internal specifications, and that they are airworthy.

Is that something that should be an accepted practice?

Mr. COLEMAN. If they can determine it is airworthy.

Senator COHEN. Mr. Frisbee?

Mr. FRISBEE. I will tell you that air carriers do not have the capability to test parts physically and chemically to determine whether or not they meet type design. They do not have that kind of testing equipment on hand.

Furthermore, they do not have the data. Without the data, you cannot do it. And much of that data is proprietary. You could not get it if you wanted it.

Furthermore, the FAA has already made the determination under their definition that that is an unapproved part, period. And the regulations are quite clear. In fact, that is one of the problems that we have had with the FAA—the regulation with regard to manufacturing of parts is clear. It has not been enforced. The part should never have been sold by that manufacturer if he has no certification. That is what the regulation says.

Senator COHEN. Is there any disagreement among the panel members with what Mr. Frisbee is saying?

Mr. BEACH. If I might, Senator, I would just like to clarify one point given that this started with a reference from my testimony.

The fundamental problem, or a fundamental problem as we see it, is that when we talk about documentation, there is not presently a single standard for what documentation an installing person or entity must have in order to determine the authenticity of a part.

Now, we have advocated in AIA, and we are joined by a number of other associations in this respect, moving toward a uniform standard based upon FAA Form 8130–3. And as an individual manufacturer, we have begun to issue FAA Form 8130–3 as attesting to the authenticity of all parts and engines that we sell at the time that we sell them, so that we provide a "birth certificate" of a regulatory nature to our customers. But that is a voluntary act that we have taken; it is not presently required by regulation.

The other observation that I would make is that in the experience that I have had investigating cases at Pratt and Whitney, by and large, airline customers do not buy unapproved parts directly from suppliers to production approval holders, but rather, the unapproved parts enter the marketplace through distributors and brokers. Mr. Rioux may want to comment on that as well. And that emphasizes even more the importance of defining, once and for all, so that we can have a baseline that we can all work toward, what that documentation is that an installing entity should have in order to make that determination, along with the other evidence regarding the part.

Senator COHEN. Mr. Rioux, do you want to quickly add a comment to that?

Mr. RIOUX. Well, I agree. There are approximately 6,000 parts dealers, brokers and suppliers in the United States, and it is a real difficult challenge to meet the requirements. But all of our operators who are members of ATA have procedures in place that require the documentation.

I need to interject that Mr. Frisbee, who was with Northwest several years ago, is now retired, and it has been several years since he has been involved in these activities, and most of the procedures that we have developed to combat some of these concerns have been put in place since his departure.

Senator COHEN. So you think the situation is getting better, not worse?

Mr. RIOUX. Absolutely, and we are working jointly with the FAA on numerous initiatives. I think Appendix A to my testimony outlines all those initiatives, and we are moving in the right direction.

Senator COHEN. Let me ask the panel members a series of questions. I will go down through them, list them, and you tell me where you disagree. I will take your nodding as judicial notice that you agree.

It has been recommended that there be mandatory standards on the disposal of scrap parts. Should that be mandatory? For example, this junk here, should there be a mandatory requirement that it be disfigured or melted down to prevent it from getting back into the stream of commerce?

Mr. Beach?

Mr. BEACH. Let me give more than a one-word answer, but I will try to make it very brief.

Senator COHEN. You may have two and a half words.

Mr. BEACH. There is no definition of what a scrap part is. Arguably, a scrap part is nothing more than a part which has been determined by the person who holds it to be unserviceable. It does not mean that it cannot be made serviceable through the performance of approved repairs based on FAA data. Therefore, we might be throwing a lot of parts which are capable of being made perfectly serviceable overboard if you have a mandatory rule to just mutilate anything that is determined at any point in the system to be scrap.

Senator COHEN. OK. So there is no definition of what is a piece of scrap and what is salvageable. So we cannot mandate something we do not know—is that what you are saying?

Mr. BEACH. That is a fair shorthand, yes, Senator.

Senator COHEN. Mr. Rioux?

Mr. RIOUX. Well, we already comply with the advisory material that the FAA has, and in our particular position, that is as good as a regulation, and our members do comply with the procedures. I think if you mandated it, you could still have an unscrupulous person or organization who would avoid the requirements anyway. But if it is needed, we would support it.

Senator COHEN. Mr. Coleman?

Mr. COLEMAN. I would agree with both Mr. Rioux' and Mr. Beach's comments.

Senator COHEN. Mr. Glueckler?

Mr. GLUECKLER. I would agree with the comments given, but I would also add one of the sources that comes up very often on unapproved parts is production overruns or rejects which a production approval holder returns back to his subcontractor. Presently, there is no mandatory requirement that these parts, or these nonconforming parts, be mutilated. And there are some manufacturers who have taken the initiative to do that, but without regulatory requirement, these nonconforming parts are then sent back to that subcontractor, and they are a source for nonconforming parts going into the marketplace.

Senator COHEN. Mr. Frisbee?

Mr. FRISBEE. It is a problem. I would say the prudent owner of the part should, if anything, destroy the part when it leaves his property. He may—and this has occurred—where air carriers have thrown parts away and ended up buying them back after they were "refurbished."

Senator COHEN. Do we have to have a definition of what a "prudent owner" is?

Mr. FRISBEE. It is very hard, as Mr. Beach says. After all, because the part is run out beyond limits, the owner may not want to destroy it. He may want to keep the part because a repair may come at a later time. It may not be capable of being repaired now, but 6 months down the road, it may. It is like the three or four McCauley propellers that I have in my barn that have dug into the ground, that have nice, curved tips on them. They are unusable; they cannot be straightened. You say they should be destroyed, but they are mine; I do not want to destroy them. Would I sell them to someone? No—but then I am a prudent person. But McCauley may, 6 months from now come up with a repair that will allow them to be straightened.

Senator COHEN. Is it customary practice for airlines to hold onto what they see as something which has reached its stress limitations, with the hope that 6 months from now, new technology might come along?

Mr. FRISBEE. Oh, absolutely. There is not an air carrier in business that is going to throw any part away that they think might have a repair come down for it later on.

Senator COHEN. Is there a statute of limitations that they can hold it for 6 months, a year, 2 years, 5 years?

Mr. FRISBEE. No, no. I have seen 50-gallon drums—just like that—50-gallon drums full of turbine veins, turbine blades, in the stock room, in an impounded area, that no one can get to, and we have looked at that and say, hey, that is great; you have got them impounded, and nobody can use them. Just make darn sure if you sell them, you cut them in half for scrap.

Senator COHEN. But the problem is that what is being contained in those barrels is not being cut in half; it is being sent out for salvage and then being sent back into the inventory.

Mr. FRISBEE. That is right. And the airline could very likely turn around and buy the same ones——

Senator COHEN. Unknowingly.

Mr. FRISBEE.—unknowingly. That is why I say the prudent person will do that.

Senator COHEN. How about mandatory reporting of suspected unapproved parts?

Mr. Beach?

Mr. BEACH. We certainly would have no objection to that that I can think of, Senator. I would harken back to the question regarding the distinction between suspected unapproved parts and actually substandard parts. If you have a requirement that allows for no exercise of judgment, you may flood the system with a lot of reports which will end up being very benign in nature. But I do not have a principled objection.

Senator COHEN. OK. Mr. Rioux?

Mr. RIOUX. We would not have an objection to that. Again, the advisory material is already in place, and we comply with that, so I do not see a need for any additional action.

Senator COHEN. Mr. Coleman?

Mr. COLEMAN. We would support that.

Senator COHEN. Mr. Glueckler?

Mr. GLUECKLER. The Airline Suppliers Association would support that.

Senator COHEN. And Mr. Frisbee, I assume yes?

Mr. FRISBEE. Yes.

Senator COHEN. How about increased civil or criminal penalties? We will start with you, Mr. Frisbee. Should we increase the penalties that are currently on the books, or leave them as they are and simply enforce the regulations?

Mr. FRISBEE. For people who have engaged in——

Senator COHEN. Scrap dealers are not engaged in something illegal, by the way, when they actually cut the tags off. There is no regulation prohibiting that. But for those who are engaged in counterfeiting, should we have increased penalties?

Mr. FRISBEE. I think there are different degrees. When you talk about the suspected unapproved part, or the unapproved part, I think you have to look at each one and decide. I do not think perhaps you could have one across-the-board penalty, but I would make it tough on them. Those guys lie, cheat and steal, and some of them are very creative. Even the simplest part under the right conditions can cause disaster if it fails.

Senator COHEN. Mr. Glueckler?

Mr. GLUECKLER. We would certainly support minimum mandatory sentences and minimum monetary finds to try to deter criminal activities in this area.

Senator COHEN. Mr. Coleman?

Mr. COLEMAN. If it were determined to be an effective deterrent, we should make adjustments to the penalty.

Senator COHEN. Mr. Rioux?

Mr. RIOUX. I concur with that.

Mr. BEACH. I would agree with that also, Mr. Chairman.

Senator COHEN. What about creation of a database accessible to the aviation industry which shows all PMA certificate holders? Should we have a national database that the airlines or manufacturers can tap into and say this is an approved source?

Mr. BEACH. We have not had that up to now, Mr. Chairman. That is certainly an initiative that we support because the more information that we can put in the hands of parts installers so that they can know whether they have a part that has been properly approved or not, the better. So we would be in favor of such a system.

Mr. RIOUX. We concur with that, Senator. In fact, we have been very aggressive in trying to pursue that in a commercial aspect as well, but unfortunately because of litigation issues with PMA and non-PMA, that gets a little difficult. So we think the responsibility belongs with the FAA.

Senator COHEN. Mr. Coleman?

Mr. COLEMAN. Yes. We would not want to see the establishment of it mean there would be a delay in getting people onto the list, because we want access to them, but we would support it as a concept.

Senator COHEN. Mr. Glueckler?

Mr. GLUECKLER. We would certainly support a database such as that.

Senator COHEN. And Mr. Frisbee?

Mr. FRISBEE. It should be done, yes.

Senator COHEN. And finally, also, the creation of a complete, accurate database, accessible to the aviation industry to disclose all confirmed cases of unapproved parts.

Mr. FRISBEE. Confirmed cases of unapproved parts.

Senator COHEN. In other words, you have somebody who has engaged in the distribution of unapproved parts. That company or that source should be entered into a database so that people will know who is supplying such materials.

Mr. FRISBEE. I think that by the time you would—I would have to think about that, but I would think that by the time the IG got done with them, they would be out of business—I would read about it in the newspaper.

I can tell you from an air carrier's standpoint that there is a kind of an underground telephone system that goes on that if one QA system at one air carrier finds what they determine to be an unapproved part, before anybody else will know about it, the QA operations at the other carriers will know about it—even before the FAA does—because if airworthiness is involved, we share that information very quickly.

Senator COHEN. Mr. Glueckler?

Mr. GLUECKLER. In this day of electronic bulletin boards, we believe there is no reason why confirmed suspect unapproved parts could not be put onto an electronic bulletin board, and also, for that matter, indictment which the Inspector General is able to obtain for criminal activities, why that information could not be available on an electronic bulletin board for the industry to access.

Senator COHEN. Mr. Coleman?

Mr. COLEMAN. A list would be good.

Senator COHEN. Mr. Rioux?

Mr. RIOUX. I support that.

Senator COHEN. Mr. Beach?

Mr. BEACH. With a suitable threshold to make sure that the "scarlet 'A'" does not get applied to somebody who really does not deserve it, we would have no problem with that.

Senator COHEN. Gentlemen, I have other questions, but I want to give Mr. Hinson the chance to come forward, so I will submit additional questions to you for the record, if you could answer them in writing.

I appreciate your patience this morning in accommodating the Senate's schedule. Thank you very much. It has been very important.

Senator COHEN. Mr. Hinson, Mr. Broderick, and Mr. White, would you stand and raise your right hand? Do you swear that the testimony that you will give is the whole truth and nothing but the truth, so help you, God?

Mr. HINSON. I do.

Mr. BRODERICK. I do.

Mr. WHITE. I do.

Senator COHEN. As our last panel, I would like to welcome David Hinson, Administrator of the Federal Aviation Administration. He is accompanied by Tony Broderick, the Associate Administrator for Regulation and Certification; and Mr. William White, the Deputy Director of Flight Standards.

Mr. Hinson, please proceed. I am now told that the voting will start at roughly 1:45, and I certainly want to give you as much time as necessary until then.

TESTIMONY OF HON. DAVID R. HINSON,[1] ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION, ACCOMPANIED BY ANTHONY J. BRODERICK, ASSOCIATE ADMINISTRATOR FOR REGULATION AND CERTIFICATION, AND WILLIAM J. WHITE, DEPUTY DIRECTOR OF FLIGHT STANDARDS

Mr. HINSON. Thank you, Mr. Chairman.

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[1] The prepared statement of Mr. Hinson appears on page 212.

I just want to say at the outset that I am more than able and willing to come back later today, tomorrow, next week, or any time that the Committee would like to have more discourse on this very important subject. So if we are unable to conclude to your satisfaction, we are available.

Senator COHEN. Thank you.

Mr. HINSON. Mr. Chairman, I welcome the opportunity to appear before you today. With me, as you said, are Tony Broderick, Associate Administrator for Regulation and Certification, and Bill White, Deputy Director of Flight Standards.

With your permission, Mr. Chairman, I ask that my full statement be included in the record, and I will just give a quick summary.

Senator COHEN. It will be included in the record in full.

Mr. HINSON. Thank you.

I also, when I have concluded with my brief remarks, would ask Mr. Broderick to quickly walk the Committee through the processes that are involved in managing the parts questions that have been raised today.

First I want to talk about the bottom line, and I call your attention to the chart on the top. The critical question that has brought all of us here today is: Do unapproved parts pose a significant safety problem for the flying public? And I want to tell you, Mr. Chairman, that the answer is no, they do not.

There has never been a U.S. air carrier accident in which an unapproved part or parts were determined to be the cause. I can also say that that is true for the 30,000 general aviation accidents investigated by the NTSB since 1983.

Senator COHEN. And you are using "accident" as opposed to "incident"; correct?

Mr. HINSON. Yes, sir.

Despite the number of cases of suspected unapproved parts the FAA has aggressively investigated over the past 5 years, only 8 cases have resulted in airworthiness directives—8. Simply stated, the skies are safe. Our desire is to keep them that way, to eliminate anything that might potentially become a safety problem.

This has led us to pursue a series of initiatives to prevent the use of unapproved parts. It is these efforts and the efforts yet underway that we wish to share with the Subcommittee today.

Mr. Chairman, interrupting here for just a moment, I would point out that this chart showing the primary causal factors of NTSB accidents involving 121 carriers would be exactly the same chart for Part 135 and for general aviation; the curve would be essentially the same.

It shows at the bottom the vast majority of accident cause is related to human factors or crew interaction, going on down to zero for unapproved parts. And as I pointed out, for 135 and general aviation, that chart would be identical. I think that is very important.

Mr. Chairman, I think it is important also that your leadership on this Committee will hopefully allow my successor in 5 years, or 4 years, or 3 years, or whenever it may be, to come before you and also be able to put up a chart that shows that there have been zero accidents that have resulted from unapproved parts. It is in that light that I welcome the opportunity to testify before you and encourage what you are doing, and perhaps we can continue to make more progress.

Let me put the safety issue into better perspective, giving you some foundation for why we reach the safety conclusions that we do.

Perhaps most telling is that there are literally hundreds of millions of parts on our Nation's airlines. A Boeing 747, for example, has over 6 million parts. We estimate that about 26 million parts, as you noted in your opening statement, are changed each year. Since 1989, we have received about 1,100 reports of suspected unapproved parts or SUPs.

Our investigation of those reports has led to 114 FAA enforcement actions and 69 initiatives, of which 8 were the airworthiness directives I spoke about earlier.

More telling, however, is that the NTSB, which investigates accidents, has never found that an unapproved part has contributed to a U.S. airline accident. Significantly, from a risk assessment perspective, the issue of unapproved parts is not included in the NTSB's "most wanted" list, nor does it find a place on the list of important accident causal factors developed by Boeing in a recent comprehensive report.

There are good reasons for the fact that there have been no airline accidents from unapproved parts. That record has not been achieved by happenstance. The first line of defense is the Federal aviation regulations and rules governing aircraft design and manufacture and their many requirements for redundancy and failsafe systems.

Unapproved parts have been on airplanes; that is not in dispute. And they have caused incidents; that is not in dispute, either. We would, of course, like to have that be zero as well. But because of the design characteristics of the airplane, we have yet to have an accident. We certainly do not want one.

The second line of defense is a series of steps, which I will ask Mr. Broderick to talk about, that provide a detailed system of parts approval and quality control. In combination, these two measures have resulted in the safety record we enjoy today.

We have worked with the Office of the Inspector General on a number of safety issues since the OIG was created. That office has made many valuable recommendations to us and continues to do so, and we welcome those contributions.

There are times, however, when we disagree about our priorities and how we should address the issues. There are also times when we do not agree on technical matters, such as findings that may be associated with an audit of parts at 14 domestic and foreign repair stations, to which the IG referred earlier. That report was dated March the 7th of 1994.

The report found that of a total of 495 types of newly-purchased parts, 43 percent—95 percent in the case of parts from distributors—had insufficient documentation and were considered to be suspected unapproved parts. The report contained specific examples for only 64 part types. We then took a look at it, finding that there was adequate information to follow up on 51 of the cases.

Our technical findings were quite different. Of these 51 cases of suspected unapproved parts, our inspectors found only 8 cases, or 16 percent, involved problems of any nature, and only one case was directly related to unapproved parts. That was a previously-known counterfeit parts case about which we had previously informed industry and the OIG. Put another way, we verified the integrity of 98 percent of those parts.

I cite the preceding information only as a means of adding perspective to the issue, not to demonstrate that unapproved parts should not be of concern to us. Clearly, they should be, and they are. That is why we have a variety of initiatives underway to better address this problem.

But before highlighting these efforts, I would like to point out that there is a key distinction, as we heard earlier, between two types of unapproved parts. And by the way, Mr. Chairman, we do not use the term "bogus part." It does not enjoy any place in our lexicon. Parts are, in our case, approved or unapproved.

Senator COHEN. My understanding is that the word "bogus" has been used for over 40 years in the airline industry.

Mr. HINSON. Well, not by the FAA, sir. "Unapproved parts" may fit somebody's definition of "bogus," but we only deal in "approved" and "unapproved," and I will get to that in just a second.

Counterfeit parts, or parts with fraudulent documentation, often called bogus parts, that are introduced into the parts inventory by criminal acts which bypass the FAA regulatory standards—that is the first set of unapproved parts.

The second set includes parts that are manufactured either without an FAA production authority or without proper quality assurance. Those are the two kinds of unapproved parts.

Our experience has been that by far, most unapproved parts cases are associated with lack of compliance with FAA production and maintenance regulations and procedures, rather than counterfeit or fraudulently documented parts.

Senator COHEN. Do they both pose safety problems?

Mr. HINSON. Maybe—perhaps. I will not say yes or no. I would have to qualify the answer. And this is where the FAA has concentrated its efforts.

Where criminal conduct is suspected, we offer our technical assistance to the OIG, and to the Department of Justice and the FBI, whose criminal investigations we applaud. And by the way, we are happy to have these. We think they are great—get them public, make people know that if they commit fraud and crime in this area that they are going to pay a stiff penalty. We certainly support and want more publicity on that, and we certainly applaud the IG for helping in this area.

The FAA's basic regulatory structure for dealing with parts provides safeguards to help assure airworthiness of parts at both the manufacturing and the installation or operation phases of the parts process.

On the other hand, distributors, whether they be a specialty shop or a hardware store, are not regulated by the FAA. They are neither responsible for the production of parts nor for their selection or use in maintenance activities.

In fact, as intermediaries, parts brokers may not even have possession of the parts. Under FAA's rules, it is the end-users, the repair stations, the certificated maintenance personnel, air carriers and so forth, who bear responsibility for assuring the airworthiness of parts before they are installed. They may determine parts' conformity to applicable specifications and their airworthiness through documentation, through inspection and maintenance, or through a combination of both methods.

Let me now talk about some of our initiatives to address the unapproved parts issue, many of which respond to the OIG recommendations.

Senator COHEN. Can you draw a distinction between that type of individual or company that is criminally minded and intends to produce items for introduction into the stream of commerce and one that is engaged in manufacturing, but simply does not have the certification or approval of FAA?

I would assume that we should give the same presumption of unairworthiness to both, at least at the beginning. You could not have a totally legitimate manufacturer who says, "I do not like the delay from Mr. Hinson's office. He has not responded in time. It takes 2 years or 3 years to get approval. I want to get in the business now. I have had some experience in the manufacturing field, I have a good reputation, and I am going to produce these." The parts may in fact measure up to all the specifications but they do not have the certification.

So I would presume that you would put them at the same level as the counterfeiters, at least at the very beginning, and then force a burden of proof.

Mr. HINSON. That is correct. An unapproved part is an unapproved part without respect to origin. If it is unapproved, you cannot use it. You have to satisfy yourselves that it is either approvable or that it has been documented as airworthy.

Senator COHEN. And so for that purpose, you would not use the word "bogus." You would say it is unapproved, whether it is counterfeit or whether it is real?

Mr. HINSON. That is correct. And furthermore, Mr. Chairman, in the narrow sense of things, an unapproved part could, in an aeronautical sense, be safe or unsafe. A counterfeit part in the aeronautical sense could be safe or unsafe; it all depends on how judicious they were in manufacturing it. They could technically and theoretically have a counterfeit part that meets all the standards, so it would not be unsafe.

So you can have——

Senator COHEN. But from a legal point of view and from a regulatory point of view, we want to treat them the same, do we not?

Mr. HINSON. That is right; absolutely. They are unapproved; yes, sir.

Senator COHEN. OK.

Mr. HINSON. I want to talk about some of the things we are doing. And by the way, Mr. Chairman, back in the late eighties and the early nineties, the FAA and the OIG at that time started an effort, I think prodded somewhat by the IG—and I was not here, but I think that is probably a good sense of history—to really try to get on top of this problem. And I noted with interest the IG's chart this morning that showed the rapid jump in criminal prosecutions in this area. I think that is testimony to the fact that we are making good progress in finding people who are in fact trying to criminally abuse the system; and we want to continue to do that.

In the past several years, the FAA has issued a variety of Advisory Circulars providing guidance to the aviation community on suspected unapproved parts. We have also issued a revision to our old airworthiness approval tag, which everybody in the business knows about, as a first attempt at creating a combination universal parts control tag and maintenance release acceptable any place in the world. That is a very important small point. For years, there has been no effort to standardize the approval tags that are on parts and the maintenance release that goes with them. We are now working to do that so hopefully, theoretically, we can create a system that is acceptable here, would be acceptable in Japan, acceptable in France, and so forth.

We chartered a Parts Approval Action Team in September of 1992—almost 3 years ago—and followed that up in August of 1993 with the establishment of a formalized FAA suspected unapproved parts program. In fact, since 1989, we have had a headquarters office and an office at Dulles Airport overseeing FAA's involvement with SUPs. So we do have specific dedicated people working on this problem.

We have actively involved our Aviation Rulemaking Advisory Committee, or ARAC, comprised of industry and public representatives, with this issue. Based upon their work, we are developing a new Advisory Circular on "Determining Disposition of Undocumented Parts," which you were discussing earlier, to address the appropriate means of returning to service or otherwise disposing of inadequately documented parts sitting in inventories—I think you were getting at that with the previous panel.

We have also conducted approximately 150 public seminars on the SUPs problem out in the industry.

On another subject, to deal with the issue of military surplus parts—and there are a lot of these—we have jointly chartered an effort with the Defense Department pursuant to which we are establishing a process for identifying dual-use flight safety critical aircraft parts—those parts, in other words, that were given to the military for their airplanes, but because there are comparable civil aircraft, can be used on both airplanes.

We have just completed our organizational efforts with the Department of Defense and have agreed on a basic plan that is underway. We are now working to define a process to ensure that critical parts lacking documentation, proper configuration or serviceability are identified and mutilated by the DOD prior to their disposal. Their value will only be as salvage, not as possible unapproved replacement parts for our commercial fleet.

Senator COHEN. Why shouldn't the same policy apply for the commercial sector as you now want to apply to DOD? Namely, if you have items which have reached the end of their service level, and DOD makes a determination that they have lived beyond their viability, they should be disfigured because you do not want to see those ending up in the commercial stream of commerce. Why shouldn't the same policy apply to the commercial airlines as far as their used parts?

Mr. HINSON. Well, let me just start by saying that DOD owns all their parts, and since they are the owner, they can agree to dispose of them, which they have. We could in that context get every individual user or airline to agree with us on a one-on-one basis to do that. That is impractical, obviously. Since we do not own the parts, there is a question of legality here and whether we could in fact mandate them to do so. It would probably take some kind of a law by Congress in order for us to do that.

Senator COHEN. Is it just a question of ownership? I am really getting at the issue of safety. If it is the judgment of the FAA working with DOD that the DOD should in fact make this determination and disfigure scrap material that cannot be reconfigured, why should we not at least seek to do this by way of either regulation or law, if safety is the critical determinant?

Mr. HINSON. From a philosophical standpoint, we have no objection to considering that, and in fact we have talked about that, I am sure, on and off for many, many years. It does pose a number of practical problems, because this parts issue is much more complex than what we are here to talk about today. For instance, there are rotable parts, nonrotable parts, time-sensitive parts, non-time-sensitive parts, and a whole myriad——

Senator COHEN. One could make the argument, I suppose, that DOD may have even tougher specification standards for the use of military equipment than does the commercial sector. You could at least argue that point because we do have higher standards in many of our warships and other types of aircraft than you would find in the private sector. But if you come to the conclusion that at some point in time, a part has gone beyond its useful life and ought to be disfigured, it then becomes a question of ownership. If the issue is ownership, and we can enforce this on DOD, but we cannot enforce it on the private sector, that is a policy decision. But in terms of a safety standard, should there not be one standard for both Department of Defense and the commercial traffic?

Mr. HINSON. In a broad context, of course; in the broad context.

Senator COHEN. If it is an enforcement problem, I understand that.

Mr. HINSON. Yes. We will take the "Go do" on that, Mr. Chairman, and I will get back to you with specifics. I know we have looked at that, and in fact, I will get you in very short order a position paper on that question, because it is a very complex issue.

Senator COHEN. I understand the practicalities involved, but I am asking you from a policy point of view should we have one standard for the Department of Defense, that DOD cannot put this part back into the stream of commerce, but in the private sector, it is OK that you do that? The private sector should not, but can do it, because we do not have any means of controlling it.

Mr. HINSON. I will cautiously agree with that. I will not agree fully because I do not really understand all I need to know about it before I say yes.

Mr. WHITE. Senator, there is one other issue involved with military parts versus U.S. civil certificated parts, and that is that the military establishes the specifications in design for their parts using military aircraft.

Senator COHEN. Which is usually much higher than in the private sector.

Mr. WHITE. I do not know, again, what that design is, but I do not disagree that it is probably a safe operation. But certainly that design data would have to be reevaluated in the FAA regulatory system, and that is quite costly, versus those that already have been evaluated under the civil system.

Senator COHEN. I understand I am making a generalization, or perhaps an overgeneralization here, but we have also criticized the DOD for becoming too specialty-minded, saying you are not buying enough off-the-shelf, commercially-available products. So that is another side of the debate, and that is why I stress that DOD has been accused, and justifiably so, for "goldplating" and using standards which are so unique that it puts them outside the commercial marketplace where they could buy things less expensively and perhaps reduce the burden on the taxpayers. But we can debate that at another time.

Mr. Hinson?

Mr. HINSON. Mr. Chairman, I noticed that you were asking the previous panel about a database, and I think you will be pleased to know that we are working with the industry to develop that kind of a database, and we can talk about that in more detail at your convenience.

There is also underway a significant effort concerning parts distributors and brokers. The inspector general has recommended that we take action to directly regulate the distributors, of which there are some 2,000 to 5,000, depending on how we classify them. We have declined to accept that recommendation, believing that the need to formally regulate distributors has not been shown. Thus, the imposition of new Federal regulations that could be costly and burdensome to both the users and the taxpayers, without producing corresponding safety benefits, would simply be unwarranted.

Further, at a time of Government downsizing, the licensing of distributors by the FAA would needlessly add to the heavy workload and create unnecessary costs.

Instead, we believe that a far better approach is for an accreditation program for parts distributors, and we are working to see that that is established.

We are also working cooperatively with an industry-run voluntary accreditation program for distributors, and an Advisory Circular for the industry is under development by the FAA that will specify quality standards and auditing criteria. As part of this effort, we are considering what incentives we can offer to certificate holders who obtain parts only from distributors that have been accredited.

We are also developing an FAA rulemaking proposal that would make it a regulatory violation for a distributor or other person to misrepresent that a product is an FAA-approved product. Even though a distributor's activities would not directly be licensed by the FAA, their false assertions would be subject to our regulatory authority.

In closing, Mr. Chairman, let me assure you and the members of the Subcommittee that we do not take lightly the issue of unapproved parts. On the contrary, it is our expectation that all parts on aircraft be approved. Although we have taken a variety of actions to address this issue, we recognize there is still much to do.

So with your permission, Mr. Chairman, depending upon your time——

Senator COHEN. Prior to Mr. Broderick discussing the charts, could I pose a few questions, and if there is time afterward, he can go to the charts.

Mr. HINSON. Yes, sir, please.

Senator COHEN. Let me pose a hypothetical to you, Mr. Hinson. A pilot who is operating an aircraft with two jet engines has to shut one of them down in flight. In your judgment, would this pose a potential hazard to the continued safe flight and landing of that aircraft?

Mr. HINSON. Well, it depends, Mr. Chairman, on the assumptions I make. I have been in that position myself on several occasions. If I shut the engine down as a precautionary measure because I have low oil pressure or another malfunction, the answer is no, it is not a problem at all; in fact, the airplane is designed with that in mind.

If it were a more serious problem——

Senator COHEN. I used the words "potential hazard," so you say the answer is not necessarily just by shutting one engine down.

Mr. HINSON. It may or may not be just by shutting one engine down; no, sir. It may or may not be.

Senator COHEN. How about the resale of a jet engine blade that I have mentioned several times here today, either with or without false certification; do you think that could pose a significant threat?

Mr. HINSON. Well, if the blade were not airworthy and were essentially unapproved—what you happen to be holding up is a turbine blade, I believe, for a JT8D engine, and if it had a catastrophic failure—you know, I could posit lots of resulting circumstances—the engine is designed to contain that in terms of shielding, and we have to assume that in our certification. But clearly, it could deteriorate into a more serious situation.

Senator COHEN. I would point out that the Committee has spoken to at least four different aviation experts, and each of the four would state that with the shutdown of one engine, that does in fact pose a hazard. The best case scenario is that you can land safely and get out of the situation. The worst case scenario is that you have an engine that catches on fire, and the plane ends up crashing.

But I would point out that even if you disagree with that assessment, there is a piece that appeared recently in "Newsday" in which a Pratt and Whitney quality assurance specialist stated that an engine failure can, number one, be catastrophic, and that even if the engine did not break into pieces or catch on fire, engine failure could still so rattle the crew that a tragedy results.

An example of that is a Midwest Express DC–9 that crashed back in 1985 and killed some 31 people on board when the pilots incorrectly responded to a failure of an engine during takeoff. That is where the aviation experts that we talked to say you have a problem when it shuts down; even if it does not explode or catch fire, nonetheless you could have a crew reaction to it.

Mr. HINSON. Mr. Chairman, that is correct. However, essentially, I could postulate for you numerous circumstances that would cause an engine to fail that have nothing to do with parts whatsoever, where the crew's inability or failure to fly the airplane correctly is responsible for the accident. That is a separate issue.

Senator COHEN. I am going to get to that, because I want to talk about whether there has been a direct or indirect contribution on the part of these unapproved parts.

You indicated that the FAA has received only about 1,100 reports of suspected unapproved parts. We have a printout of the FAA's database that shows 1,294 cases have been received as opposed to 1,100. But you use the word "only" as if to imply that that is not really very significant. When in fact we heard in this morning's testimony that there may be many thousands of individual parts in one report. So to say that there are now not 1,100 cases, but 1,294 cases, really does not accurately reflect the magnitude of the problem if one report contains 100,000 parts, does it?

Mr. HINSON. Well, I do not disagree with that. The difference between my testimony and the 1,200, I am sure we can account for. But one is too many, Mr. Chairman; one is too many. We do not want any.

Senator COHEN. OK, fine. We agree.

Mr. HINSON. OK.

Senator COHEN. You have also indicated that the National Transportation Safety Board has never found that an unapproved part has contributed to a U.S. airline accident. I think this has been repeated a number of times, but it really does not fully disclose the facts. The FAA's review of the Transportation Board's accident data showed 11 cases where a quote "bogus"—I use that word again—part was noted as a contributing factor in general aviation accidents. So we have had at least 11 cases where bogus parts have contributed, if not been the principal cause, in general aviation accidents.

But in response to a Subcommittee inquiry, the FAA previously disclosed 13 accidents and 2 incidents in which bogus or unapproved parts were listed as a contributing factor, and one of those incidents in fact related to a major air carrier. That was Pan Am Express back on July 29, 1990, at John F. Kennedy Airport.

Do you have any explanation for the difference?

Mr. HINSON. Well, I would like to make a comment first. Of the 11 general aviation circumstances you reference, in fact they were not unapproved parts. They were wrong parts, or improperly installed approved parts. That is a very important distinction. In addition to approved and unapproved parts, there are parts that are wrong for the circumstances that they happen to be used on if the mechanic makes a mistake or reads the wrong number, or somebody decides to use a part that is not even manufactured for aviation, as in the case of an automobile fuel filter which a person decided to use instead of an airplane fuel filter.

When we reviewed that with the NTSB, they agreed with our findings that in fact unapproved parts were not significant in those 11 accidents you have cited.

Senator COHEN. When you adopted this new enhanced compliance policy, did you consult with the Justice Department, or the Department of Transportation, the IGs in those offices, as to whether this might compromise or in any way complicate their criminal investigations?

Mr. HINSON. I do not know whether we did or not. I am going to ask Mr. Broderick if he knows, because I have not heard this yet, either, so we will both hear it.

Mr. BRODERICK. No, we did not, Mr. Chairman.

Senator COHEN. It did not occur to you?

Mr. BRODERICK. No, it did not, because what we were doing was stating a determination to enforce an existing regulation which we had, as was discussed earlier this morning, since the early 1980's been trying to make a little better and work with.

So it was not a question of making a new regulation. It was a question of stating our determination to enforce it. The situation we found was that we had a regulation on the books which prohibits the manufacture for sale for installation on an aircraft of a part that does not have appropriate FAA approval. And without an announcement that we were going to strictly enforce that, our attorneys felt that we would have very weak cases. So we told people that we were going to do it, and as of—I think the date is May 30th—we will be taking a very strong enforcement posture against people who manufacture for sale for installation parts which do not have appropriate FAA approval. It frankly did not occur to us that that would present a problem to the IG and the Justice Department.

Senator COHEN. But basically, it is a grant of amnesty, is it not, for those who have engaged in this unapproved process, who have put these parts into the stream of commerce? They now have been granted essentially an amnesty during this period of time, have they not?

Mr. BRODERICK. No, sir. What we have said is that if you give us data in application for a parts manufacturing authorization that you do not now have, if you give it to us before May 30th, we will not use any of that information to take enforcement action. It does not mean that in any other way we get information, we would not enforce the thing.

So it is not at all an amnesty. It does not give people who are presently producing parts any authority that they do not have. All we were saying is that that particular data would not be used against them when they submit in an application.

Senator COHEN. In any kind of imposition of sanctions, be they civil or criminal.

Mr. BRODERICK. By the FAA—by the FAA. We cannot do anything for criminal, of course. That is up to the Justice Department.

Senator COHEN. Last year, the IG issued a report finding that 39 percent of the FAA's own inventory was unapproved parts. You heard that this morning. What determination was made after that situation was called to your attention? What was the disposition?

Mr. HINSON. If you do not mind, Mr. Chairman, I will ask Mr. Broderick to answer that.

Mr. BRODERICK. We checked when we heard that come up this morning. In a very quick summary, we did a complete, 100 percent inventory, as the IG said. We had approximately $19 million of inventory in the FAA parts supply for the FAA aircraft. Six million dollars worth of the $19 million was initially questioned by the people who did the first pass-through to look for all the paperwork and conformity checks and so on. That is the $6 million figure that the Inspector General referred to.

We then formed a team of people to look at those $6 million worth of parts, and as was discussed earlier, if you do not have the appropriate paperwork, there are other pieces of evidence, tests and information that skilled and licensed mechanics have who are on this team.

We have gotten through $4.2 million of the $6 million worth of inventory, and approximately 90 percent of it can be conformed and used and put back on the shelf. There is only about 10 percent of it with which we have found problems, and we have another $1.8 million worth to complete the work.

So 90 percent of what we have been through in the $6 million has been shown to be OK, and we still have $1.8 million of inventory to go through.

Senator COHEN. Shown to be airworthy? Has it been shown to be approved?

Mr. BRODERICK. Yes, sir, it is approved now because licensed mechanics have made an airworthiness determination based on the kinds of things that the previous panel talked about.

"Airworthiness" as a term means it is in conformance with the type design; in other words, it is exactly what the drawing says it should be, and it is in a condition for safe operation. Airworthiness per se does not have anything to do with documentation. You document the airworthiness.

What was lacking in most of these cases was that documentation, and properly licensed people—and frankly, it is an expensive program to have them doing this—but they can go and look at the parts and see if documentation can be provided either by them or by others for it.

Senator COHEN. I will follow up on that in a minute, Mr. Broderick.

Senator Levin, the second bells have just gone off, so why don't you proceed?

Senator LEVIN. I will just take a couple of minutes.

On that one issue, when did you complete your analysis of the first $4.5 million of the $6 million?

Mr. BRODERICK. Senator, I am not sure. It is not really in my department, so I am relaying information that I got over the phone this morning.

Mr. HINSON. We will get that for you, though.

Senator LEVIN. And the other 10 percent, what kind of problems did the other 10 percent have? Was it that they could not be documented, or that there was an airworthiness, a safety problem, with that 10 percent?

Mr. BRODERICK. It is documentation per se, not necessarily safety. But we will be happy to provide you with details.

Senator LEVIN. So you are not suggesting that the 10 percent of the $4 million of the $6 million that you have gone through was not found to be not airworthy; you are suggesting you do not know yet what the status of that final 10 percent is.

Mr. BRODERICK. That is correct.

Senator LEVIN. Is that right?

Mr. BRODERICK. You are exactly right.

Senator LEVIN. Now, in light of the downsizing and budget cuts, has the FAA been reduced in terms of enforcement personnel, or have you not been affected by Government downsizing?

Mr. HINSON. Well, Senator, yes, we have obviously been affected by downsizing. The President directed us to reduce the size of the FAA by 12 percent, which in our case is 6,500 people, by the beginning of fiscal 1999.

By this October, the FAA will have reduced its staffing from its high 2½ years ago by over 5,000 people. However, in the safety arena, in Mr. Broderick's department specifically, we sought and achieved permission from the Secretary and from OMB and the administration to actually hire people.

I will ask Mr. Broderick to explain that process.

Senator LEVIN. Well, we do not have a lot of time——

Mr. BRODERICK. We have hired about 500 people.

Senator LEVIN. So you are going up in that area.

Mr. HINSON. Yes, sir.

Senator LEVIN. And do you know how the pending budget resolution affects you?

Mr. HINSON. Yes, sir; not very well, but it is not going to affect this program.

Senator LEVIN. Great. Thanks.

Mr. Chairman, I will submit the other questions for the record.

Senator COHEN. OK. We are going to have to conclude this hearing this morning. I am sorry you will not get a chance, Mr. Broderick, to walk us through the charts, but I think that this may demand a second hearing at the very least. And what I wanted to say to you, Mr. Hinson, is that the purpose of today's hearing was not in any way to generate widespread fear among the flying public. By the same token, while we do not want to alarm anyone, we do not want to ease them into a sense of complacency that there is not a serious problem.

The individual who testified in the previous panel indicated that there are more and more people getting into the business of supplying these types of either inferior, counterfeit, or parts that are not measuring up to the standards that the FAA demands. As you have said, we have the best safety record in the world, and flying is the safest form of travel that there is today. We want to keep it that way, and that is the purpose of this hearing, to see if we can work together to make sure that we focus on what I believe to be a serious problem.

The problem should not be minimized, and we should not look to use phrases or words that in any way reduce the magnitude by saying that we have only 1,100 or 1,200 cases. These cases may involve tens of thousands, and indeed even hundreds of thousands, of parts.

So it is in that spirit that the Committee called this hearing.

Mr. HINSON. Yes, sir, and we approach it with exactly the same feeling, Mr. Chairman. Thank you very much.

Senator COHEN. The Subcommittee will stand in recess.

[Whereupon, at 2:05 p.m., the Subcommittee was adjourned.]

APPENDIX

Statement of

A. Mary Schiavo
Inspector General
U.S. Department of Transportation

Before the United States Senate,
Committee on Governmental Affairs,
Subcommittee on
Oversight of Government Management

May 24, 1995

Mr. Chairman and Members of the Subcommittee, it is my pleasure to meet with you today to discuss Suspect Unapproved Parts, commonly referred to as "SUPs" in the aviation industry. Our work indicates that the problem is significant, and that the Federal Aviation Administration (FAA) needs to improve its safety oversight. Greater attention is needed to ensure that aircraft parts comply with the stringent airworthiness criteria established by FAA.

BACKGROUND

In the late 1980s, the Department of Transportation (DOT) Office of Inspector General (OIG) noticed a disturbing increase in reports of bogus aircraft parts. In November 1991, OIG targeted bogus aviation parts as its top investigative priority because a number of indicators clearly pointed to a problem in the industry. First, the numbers of allegations concerning the existence of bogus parts in the industry were increasing. Second, aging aircraft fleets required replacement parts that the original manufacturers either were no longer obligated to supply or no longer manufactured. Third, the numbers of aircraft parts brokers and distributors were increasing. Fourth, the high price of aircraft parts, made it extremely lucrative for unscrupulous parts manufacturers and suppliers to prey on airlines experiencing huge financial losses. Fifth, the globalization of aircraft parts manufacturing and the wide distribution of parts specifications among manufacturers made it easy to counterfeit parts. For example, the Boeing 747 has approximately 1,500 parts manufacturers, located around the globe. An engine has thousands of parts; a plane has millions. Once the design drawings and specifications are available, unscrupulous manufacturers can duplicate the part at will. The parts are then sold without the necessary testing and approval, creating international bogus parts problems. Sixth, there is motive and opportunity to commit bogus crimes. Oversight and inspection were lax or nonexistent. The chances of getting caught were slim. This was a lucrative enterprise, with a good clientele, and a low risk of apprehension. Seventh, even though this issue seems to have been first reported as early as 1957,[1] no one had assessed how extensive and how widespread the bogus parts problems had become. The unknown was even more troubling than the known. Eighth, and perhaps most troubling, the FAA failed to adequately acknowledge, comprehend, and address the problem. On one of our early criminal cases, it took over a year to get an airworthiness directive issued on a bogus starters case. In the not-too-distant past, the FAA's official position was that bogus parts are not a big problem and are certainly not an issue that compromises safety.

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[1] See Flight Safety Foundation Digest, January/February 1994, page 3.

These facts, the widespread criminal activity we have uncovered, and FAA's failure to adequately address the issues, indicated to us that the problem was significantly underestimated, like the budget deficit of past years which the Administration and the Congress struggle with today--a problem which if unchecked will have potentially devastating consequences in the aviation environment of tomorrow.

Since targeting bogus parts as our investigative priority, our criminal case load grew from 34 to approximately 220. We have amassed 139 indictments, 111 convictions, $44 million in fines, restitution, and recoveries, and 59 years of prison sentences. However, we know that our enforcement efforts, and the efforts of the FAA, have not reached an effective level of deterrence. The bogus parts problem is as widespread as ever and may be increasing. Let me emphasize that this is not a nationwide problem, it is a worldwide problem. Without an effective level of deterrence, bogus parts activity will overtake enforcement efforts. Some operators are already powerless to protect themselves from contamination by bogus parts. As our evidence will show you, we know, the industry knows, and the FAA should know, that bogus parts have worked their way into virtually every parts bin and on to aircraft. The counterfeiting of aircraft parts is so widespread that we must unavoidably draw this conclusion: if it is a part of an airplane, it could be bogus.

OIG OVERSIGHT

The Inspector General (IG) Act of 1978, as amended, assigned to the OIG, oversight responsibilities for all operating administrations and functions of the DOT, and all DOT funds. It also provided broad IG authority to conduct and supervise investigations relating to the programs and the operations of the Department. With the establishment of the DOT OIG, all major criminal investigative functions were transferred and consolidated from DOT's operating administrations to the OIG, including the FAA offices of investigation and security.[2] The IG Act gave the IG primary jurisdiction over Title 18 crimes involving departmental programs. The DOT OIG special agents are fully trained law enforcement officers who, unlike other investigative personnel in the Department, have the authority to swear affidavits for Federal search warrants. We also have the authority to issue IG subpoenas, in addition to other investigative tools such as Grand Jury subpoenas, and where appropriate, participate in undercover operations.

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[2] The exceptions are the U.S. Coast Guard (USCG) general crimes which are investigated by the USCG's Office of Intelligence and Law Enforcement and the Odometer Fraud Unit which is located in the National Highway Traffic Safety Administration.

The OIG has an office of audit which conducts and supervises audits relating to the programs of operations of the DOT with a focus on promoting the economy, efficiency, and effectiveness in the administration of DOT programs. The OIG has an office of inspections and evaluations which conducts independent, objective inspections and evaluations of DOT programs and operations. These reviews include management, operational, policy, regulatory and legislative implications of transportation-related issues. All three divisions of the DOT OIG have addressed issues related to the bogus parts problem, and all three have found serious, widespread, and unchecked problems.

FAA OVERSIGHT

The FAA Administrator must execute the authority of the Secretary of Transportation to prescribe rules, regulations and standards to ensure the safety of civil aeronautics. In accordance with that mandate, FAA promulgated rules covering aircraft parts because there was both concern about, and determination to ensure, the integrity and quality of aircraft.

> An increasing amount of replacements parts (including standard parts), materials, appliances, and instruments are offered for sale as being of aircraft quality when actually the quality and origin of these units are not known. Users of such units are usually not aware of the potential hazards involved with replacement parts that are not eligible for use on certificated aircraft. Frequently such units are deceptively advertised or presented as "unused," "like new," or "remanufactured." This implies that the quality of such units is equal to an original or appropriately repaired or overhauled unit.[3]

FAA concluded that in order to protect the safety of the traveling public, it was necessary to regulate the design, the production, and the application of replacement aircraft parts. The FAA in recognizing the importance of certificated parts determined regulation was necessary to preserve safety, and that failure to comply with their regulatory requirements in the production and use of aircraft parts posed a potential hazard to the safety of the traveling public.

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[3] FAA Advisory Circular 20-62c, August 26, 1976, page 1, paragraph 3. Included in draft AC 20-62D, August 6, 1992, page 1, paragraph 3.

The Federal Aviation Act of 1958 as amended and codified in Title 49 of the United States Code (U.S.C.) authorizes the FAA Regulation of Civil Aeronautics. 49 U.S.C. Sections 1421 to 1434 "Safety Regulation of Civil Aeronautics" established FAA safety responsibilities in the areas of (1) aircraft and airport certification, (2) air carrier and air traffic control regulations, and (3) general aviation. Based on the authority in 49 U.S.C. Sections 1421 to 1434, the Federal Aviation Regulations (FAR), codified in Title 14 in the code of Federal Regulations (C.F.R.), detailed FAA's statutory responsibilities for aviation safety. The responsibilities include certification of airmen, aircraft, air carrier operations, air agencies, and airport operations. FAA also regulates maintenance of equipment and air transportation and aircraft noise. Finally FAA's enforcement program, through surveillance and detection, investigation, and enforcement processing, is to ensure the aviation industry conforms to the FAR.

The FAA Administrator, in executing the aviation safety powers of the Secretary of Transportation, as defined in 49 USC Section 1421 "Powers and Duties of the Secretary of Transportation" shall prescribe in the interest of safety:

(1) Minimum standards governing the design, materials, workmanship, construction, and performance of aircraft;

(2) Minimum standards governing appliances (i.e., any part that is used in operating or controlling an aircraft but is not a part of an airframe, engine, or propeller);

(3) Reasonable rules and regulations in minimum standards governing (a) the inspection, servicing and overhaul of aircraft and appliances; (b) the equipment and facilities used for inspection, servicing, and overhaul; and (c) the period for and the manner in which, such inspection, servicing, and overhaul shall be made;

(4) Reasonable rules and regulations governing the reserve supply of aircraft, aircraft engines, propellers, appliances, and aircraft fuel and oil;

(5) Reasonable rules and regulations governing the maximum hours of periods of service of airmen; and

(6) Reasonable rules and regulations, or minimum standards, governing other practices, methods, and procedures necessary for safety and air commerce.[4]

The FAA Administrator, in fulfilling FAA's Safety Oversight responsibilities, is to issue various types of certificates to ensure the airworthiness of aircraft and the safety of airports. The purpose of certification is to ensure aviation safety. Certification covers a wide range of areas including aircraft, aircraft engines, propellers, appliances, and airports.

AIRCRAFT CERTIFICATION

The FAA Administrator issues type certificates for aircraft, aircraft engines, propellers, and appliances. The FAR in 14 C.F.R. Part 21, Certification Procedures for Products and Parts, prescribes procedural requirements and rules for the issuance of, and changes to, type certificates and the issuance of production certificates and airworthiness certificates. FAR 21 also promulgates procedural requirements for the approval of certain materials, parts, processes and appliances.

TYPE CERTIFICATION

Under 49 U.S.C. Section 1421 and 49 U.S.C. Section 1423, "Aircraft Certificates," the FAA Administrator issues type certificates for aircraft, aircraft engines, propellers, and appliances that are reasonably required in the interest of safety. Before the type certificate is issued, the applicant must pass an FAA investigation, including tests during manufacture and upon completion, which are deemed reasonably necessary for aviation safety. If FAA finds the aircraft, aircraft engine, propeller, or appliance can be operated safely and meets minimum standards as prescribed in 49 U.S.C. Section 1421, the applicant will receive a type certificate, the duration and terms of which will be determined by the FAA.

PRODUCTION CERTIFICATES

After obtaining a type certificate, a manufacturer must demonstrate the ability to maintain a high-level quality control system in order to obtain a production certificate. A production certificate authorizes the building of aircraft that meet the provisions of the type certificate. Upon application for type certificate, FAA will issue a production certificate to build additional aircraft, known as "duplicates," if FAA determines the duplicate will conform to the type certificate. FAA will inspect and may require such tests as are reasonably necessary for any aircraft, aircraft engine, propeller or appliance manufactured under a production certificate. As with type certificates, FAA may determine the duration of other production certificates. All manufacturers, both domestic and foreign, which hold an FAA production certificate, are subject to FAA surveillance. The Federal Aviation Act provides that FAA must conduct surveillance inspections at the point of manufacture in order to ensure manufacturers produce products and parts complying with the FAA-approved designs.[5] In addition, according to FAA Order 8120.2A, "Production and Surveillance Procedures," FAA should assign a principal manufacturing inspector for manufacturers holding a production certificate to manage the surveillance of all aspects of the manufacturer's quality control system and to ensure compliance of the manufacturer with all specifications of its production certificate.

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[4] See 49 U.S.C. Appendix Section 1421.

AIRWORTHINESS CERTIFICATES

The registered owner of any aircraft can file with the FAA to obtain an airworthiness certificate. According to 49 U.S.C. Section 1430, it is a violation of Federal aviation safety law for anyone to operate in air commerce any civil aircraft that does not have a current airworthiness certificate. If FAA finds the aircraft conforms to the type certificate and, after inspection, it is in condition for safe operation, FAA will issue an airworthiness certificate. As with type and production certificates, FAA may prescribe the duration of the airworthiness certificate. FAA may authorize the type of service for the aircraft and any other conditions in the interest of safety.

PARTS MANUFACTURER APPROVAL

Pursuant to Section 21.303(a) of the FAR, no person may produce a modification or replacement part for sale for installation on a type certified aircraft, engine or propeller, unless that part is produced pursuant to a Parts Manufacturer Approval (PMA). The FAR exempts from this rule (1) parts produced under a type or production certificate, (2) parts produced by an owner or operator for maintaining or altering its own product, (3) parts produced under an FAA technical standard order or (4) standard parts (such as nuts and bolts) conforming to established industry or U.S. specifications.[6] An FAA aircraft certification office is supposed to grant a PMA only if the design of the part meets airworthiness standards and if the manufacturer creates a fabrication inspection system to ensure each completed part conforms to design data is produced under a system that assures the quality of the part and is safe for installation. All replacement and modification parts manufactured under a PMA must have the designation "FAA-PMA," the part number and the name and model designation.

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[5] As discussed later, the FAA does not conduct all these inspections, as required.

REPAIRED PARTS

Not all aircraft parts which are lawfully used in aircraft are new. However, a repaired or rebuilt part may be used on a type-certified aircraft if it was repaired by a licensed FAA repair station and the part has undergone approved repairs authorized by the FAA and made in accordance with the repair manual. Such a part is primarily identified by what is known as an FAA "yellow tag" or the new Form 8130-3.

IDENTIFICATION OF APPROVED PARTS

In summary, approved serviceable replacement parts are identified as follows:

A. By an FAA Form 8310-3 (formerly FAA Form 186), Airworthiness Approval Tag. An airworthiness approval tag identifies a part or group of parts that have been approved by authorized FAA representatives.

B. By an FAA Technical Standard Order (TSO) number and identification mark that indicates the part or appliance has been manufactured under the requirements of FAR 37.

C. By an FAA-PMA symbol, together with the manufacturer's name, trademark or symbol, part number, and make and model of the type certificated product on which the part is eligible for installation, stamped on the part. An FAA PMA is issued under FAR 21.305. The make and model information may be on a tag attached to the part.

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[6] The FAA also recognizes parts produced by a manufacturer in a foreign country with whom the United States has a Bilateral Airworthiness Agreement, if properly certificated.

D. By shipping ticket, invoice, or other document which provides evidence that the part was produced by a manufacturer holding an FAA Approved Production Inspection System issued under FAR 21, Subpart F, or by a manufacturer holding an FAA Production Certificate issued under FAR 21, Subpart G.

E. By a certificate or airworthiness for export issued by a foreign government under the provisions of FAR 21, Subpart N."[7]

WHAT IS A SUP AND UNAPPROVED PART, AND WHEN IS A SUP COUNTERFEIT OR OTHERWISE BOGUS?

A SUP is a suspected unapproved part. If a part for sale for installation on a type certified product, which includes essentially all aircraft of interest to this Committee, is produced not in conformance with the above-described regulations, then that part is an unapproved part. An unapproved part can take many forms. For example, if the manufacturer, broker, or supplier represents the part to be something it is not, such as a Pratt and Whitney engine part, or a General Electric generator, then that part is a counterfeit part, and the persons or companies responsible for its production and false representations have violated Federal criminal laws, criminal copyright statutes, and possibly patent protections. If a used part receives an unauthorized repair, and it is offered with the certification stating it has received approved repairs and is appropriate for installation in an aircraft, that part is an unapproved part, and FARs and Federal criminal statutes have been violated.

Thus, while often referred to generically as bogus parts, the "bogus part" represents many different kinds of parts, all posing different dangers to the aviation industry. The term "suspected unapproved parts," or SUPs, is the term most often used to encompass new, counterfeit, substandard parts, and those not manufactured in compliance with FAA regulations, including lacking proper PMA approvals, or those repaired or reworked with unapproved repairs or processes.[8] These are unapproved parts. "Suspected unapproved parts" also includes those parts which might be approved parts but are lacking the necessary documentation, unless and until the proper approvals and documentation are produced. The OIG often uses (as well as the public and the industry) the term "bogus parts" because criminal investigations most often target prosecution of those responsible for suspected unapproved parts which represent counterfeit or otherwise completely bogus parts, such as scrap which was improperly repaired and resold as an approved part.

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[7] Source: AC 20-62C.

[8] The FAA recently changed their working definition of SUPs in an attempt to curtail many SUPs reports, as discussed later in this statement.

TYPICAL BOGUS SOURCES

Counterfeit parts, and other SUPs, derive from many sources. The chart included at Exhibit 1 is a summary chart of the different types of unapproved or suspected unapproved parts. One example is the counterfeit manufacturer who holds no certification to produce and does not produce certified approved parts under anybody else's certificate. This unscrupulous manufacturer may copy existing parts or may obtain design specifications from other approved manufacturers, and simply start manufacturing parts which look like the real thing. In one of our cases,[9] for example, the defendant purchased one original legitimate part, and then had New York area machine shops and local fabricators duplicate it. Local companies printed Pratt and Whitney packaging. The bogus boxes even contained the Pratt and Whitney eagle, except on one of the bogus boxes, the Pratt and Whitney eagle was flying into the ground.

Another example is the repair station or broker which reworks scrap. A bogus part can also be a part which at one time was an approved or legitimate part but has been scrapped as beyond economic repair and should have been destroyed. The parts are obtained by an unscrupulous dealer who causes the part to be reworked, often in an operation we have come to call a "strip and dip." The part has received an unauthorized repair and new coating or coat of paint, and it is put back out on the market as an approved part with false documentation stating it has approved repairs. In one of our cases, dozens of jet starters were created this way. They were bogus--inside and out.[10] In another case, it was turbine blades.[11]

Another example of an unapproved part is the part which was produced outside the scope of the certificate. A manufacturer who has approval to manufacture under someone else's certificate, also produces additional parts for sale on the market outside of its contract with his certificate holder. The manufacturer might also sell parts rejected by the certificate holder. Finally, a "suspected" unapproved part is the part for which the origin and history cannot be determined, because it is lacking the necessary documentation. In these instances, it may have been an approved part and would be an approved part if the documentation could be reestablished, but, until and unless done so, the part's history is unknown and, therefore, the part may pose a danger. Thus it is an unapproved part and is not usable.

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[9] Polaris Investors and Trading Corp.

[10] Classic Aviation.

[11] Chromalloy.

CRIMINAL PROSECUTIONS

FAA Criminal Sanctions

Title IX of the FAA Act provides, in section 902, criminal sanctions for a series of acts or activities inimical to aviation safety. The following violations are enforced by the FAA:

• Section 902(a)	Any person who knowingly and willing violates any provisions of the FAA Act (except Titles III, V, VI, VII, and XII) not otherwise provided for shall be deemed guilty of a misdemeanor.
• Section 902(b).	Forgery of certificates and false marking of aircraft.
• Section 902(c).	Interference with air navigation.
• Section 902(d).	Granting or receiving rebates.
• Section 902(e).	Failure to file reports; falsification of records.
• Section 902(f).	Divulging information.
• Section 902(g).	Refusal to testify.
• Section 902(h).	Hazardous material.
• Section 902(p).	Interference with aircraft accident investigation.

OIG Jurisdiction

The FAA Manual explains DOT OIG authority as follows:

> "**Criminal Fraud/Regulatory Violations.** Several of these criminal violations may, under certain conditions, involve violations of regulatory provisions of the FAA Act; for example, section 902(b) and/or section 902(e). These regulatory violations are the responsibility of the FAA because of the criticality to air safety. The DOT/OIG has the responsibility for investigating Title 18, U.S. Code violations. Some of the above-listed violations may also be prosecutable under Title 18. In these cases, the DOT/OIG should be advised and the issues discussed with the U.S. Attorney to determine if criminal prosecution of the fraud

> under Title 18 (as opposed to Title 49) is appropriate. If prosecution under Title 18 is warranted, then consideration should be given to the conduct of a joint DOT/OIG-FAA investigation. When the joint investigation substantiates both prosecutable criminal violations and actionable Federal aviation regulatory violations, a request shall be made to the Office of the U.S. Attorney of jurisdiction for permission to conduct parallel criminal and regulatory proceedings in order to expedite resolution of the air safety issue while the criminal prosecution is also proceeding or pending. Whenever possible, in joint DOT/OIG-FAA investigations involving air safety, the Office of the U.S. Attorney should be advised at the outset of the issues and the possibility of the need to take expeditious regulatory action on the alleged violation(s) in addition to the criminal prosecution." (Part 1600.38B, Section 9(b))

Section 13(c) of Part 1600.38B further states:

> "Liaison with the U.S. Attorney's Office. The OIG will coordinate with the U.S. Attorney's Office in joint FAA/OIG investigations. In those criminal investigations within the purview of the FAA, the investigating special agent will establish early contact with the U.S. Attorney's Office and shall coordinate all investigative activities pertaining to the instant case. Upon conclusion of the investigation, the case will, in coordination with the appropriate agency counsel, promptly be presented to the U.S. Attorney's Office through the participating assistant."

Through our investigations, aided by the execution of many search warrants, we have seized bogus parts which fall into each of these categories. For our prosecution of criminal cases, for which we seek indictments from Federal Grand Juries and seek prosecution in Federal court, we have targeted only the most egregious violators, even though all bogus parts pose some degree of criminal violation. We have selectively targeted, because of our limited resources, not because some schemes are more or less criminal than others. Our cases target parts problems, not paperwork problems. To give you an idea of how widespread this criminal activity has become, and the vast array of parts and schemes we have investigated, we attach a summary of selected investigations at Exhibit 2.

We use several criminal statutes in the investigation and prosecution of those cases. The following is a sampling of those U.S.C. violations most frequently used by OIG:

18 USC 2	Aiding and abetting, or willfully causing an offense against the United States.
18 USC 32	Destruction of aircraft or aircraft facilities (includes endangering the safety of aircraft in flight).
18 USC 371	Conspiracy to commit an offense against the United States.
18 USC 1001	False statements in a matter within the jurisdiction of an agency of the United States. Includes:
•	delivery of inferior/substandard parts or materials;
•	delivery of untested parts or materials;
•	delivery of commercial grade equivalents;
•	substitution of used, surplus, stolen or reworked parts for new;
•	falsification of tests:
•	falsification of certifications;
•	false inspection tags/FAA Return to Service tags (yellow tags);
•	false declaration on U.S. Customs documents;
•	false import/export documents to FAA and U.S. Customs;
•	for a PMA, failure to properly assign their initial to a part number.
18 USC 1341	Mail Fraud: using the U.S. mails to further a scheme to defraud. Includes:
•	delivery of inferior/substandard parts or materials;
•	mailing of invoices, payments, or documents;
•	delivery of untested parts or materials;
•	delivery of commercial grade equivalents.
18 USC 1343	Wire Fraud: using telephone lines to further a scheme to defraud. Includes facsimile transmissions.
18 USC 1962(c)	RICO; three or more predicate offenses.

18 USC 2314	Interstate transportation of stolen property or interstate transportation of property valued in excess of $5,000 with intent to defraud.
18 USC 2320	Trafficking in counterfeit goods or services.
18 USC 2319	Trademark infringement.
18 USC 542	False declaration on U.S. Customs documents (There is a Customs duty on parts imported that are not FAA-approved, so companies will declare them as FAA-approved to avoid duties, even if they do not advertise them for sale as FAA-approved parts later).
18 USC 545	Smuggling goods into the United States.
19 USC 1304	Mislabeling of county of origin.

HOW LARGE IS THE PROBLEM AND HOW EFFECTIVE IS FAA IN CONTROLLING THE PROBLEM?

Prior to 1990, the OIG did not focus heavily on safety oversight activities of DOT. There were, however, several OIG and General Accounting Office (GAO) audits that identified needed improvements in FAA's safety oversight programs. Subsequent to my appointment as the Inspector General in 1990, the OIG audit organization began a series of audits to evaluate safety oversight in all DOT Operating Administrations. Nine audits covering FAA safety oversight programs have been completed, two more are in process, and others are planned. My testimony today will address seven of the nine audits.[12] This series of audits, with FAA responses, are attached as Exhibit 3 and submitted for the record.

SAFETY OVERSIGHT AUDITS

Our first series of audits of interest to the parts issue examined FAA's safety oversight of the large commercial airlines, commuters, and air taxi and helicopter operators. These audits identified four basic problems in FAA's general inspection oversight. The nature of these problems indicates that it would be unlikely for FAA inspections to detect bogus parts on aircraft.

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[12] The two audits not addressed relate to FAA's oversight of Airport Security and Designated Mechanics Examiners.

First, FAA did not have a system for prioritizing its inspections. For example, in FY 1989, 84 aircraft operators were inspected between 200 and 18,000 times each, although no significant violations had been identified. Conversely, 1,100 aircraft operators for whom inspections were required were not inspected. FAA recognized the need for some improvements to its safety oversight programs and initiated development of an automated Safety Performance Analysis System (SPAS) to target inspection and certification resources. GAO recently reviewed SPAS development. It said that FAA has done a credible job analyzing and defining the system requirements. However, GAO was critical of the accuracy of FAA data bases used for decision making. GAO concluded, ". . . if the quality of the data that SPAS relies on remains poor, its input to safety-related decisions will not be reliable, and it will not effectively support FAA's inspection and certification mission."

Second, we found that FAA did not use a systematic approach to its inspections. FAA Order 8400.10 required the use of job aids stating:

> . . . each type of inspection must have individual objectives and be conducted each time in generally the same manner, according to the direction and guidance in this handbook and with appropriate job aids. . . . Inspectors should describe in their reports how the inspection was limited in scope.

Our observations revealed the scope of most inspections was severely limited. For 30 ramp inspections in three district offices, inspectors checked between 6 and 66 percent of applicable items on the job aids, with an average of 38 percent. Important items such as landing gears were checked 48 percent of the time, oxygen was checked 43 percent of the time, engines 52 percent of the time, and engine controls 33 percent of the time. FAA did not agree with our recommendation to establish minimum requirements for its aircraft safety inspections and maintained that inspectors needed wide latitude.

Third, inspectors did not properly report or followup on deficiencies identified during inspection. We observed 60 ramp inspections during which 92 deficiencies were identified which required airlines to make corrective repairs. Inspectors did not record 71 of 92 deficiencies in FAA's data base so that corrective action could be tracked. Furthermore, inspectors did not report all violations for appropriate enforcement action. During FY 1990, 6 of 79 district offices that inspected the major airlines accounted for 56 percent of the enforcement actions, while 49 district offices recorded no enforcement actions. Inspectors and supervisors we interviewed had varying interpretations of FAA's enforcement policy. Some inspectors did not conform with FAA policy, stated in FAA Order 2150.3A, to identify and report every violation. Officials in two district offices stated the FAA Administrator's Policy on Compliance and Enforcement, issued July 1990, had formulated a new posture to "lighten-up" on reporting violations. FAA said it would improve its tracking of deficiencies and processing of enforcement actions. We recently began an audit to re-evaluate these issues.

Finally, FAA did not report instances of fraud identified during inspections to OIG. FAA attorneys, Headquarters officials, and inspectors were not familiar with OIG authority to investigate fraud by individuals and companies licensed by FAA. As a result, OIG was preempted from reviewing and investigating fraudulent activities within its statutory responsibility. We have had a continuing problem with FAA reporting fraud identified during inspections to OIG.

Thus, we must conclude there is little chance of spotting a bogus part through any FAA aircraft inspection. Only glaring and obvious defects, such as an oil leak, at eye level or below, or recorded in the log books, have any significant chance of detection from these limited in-scope inspections.

PARTS OVERSIGHT

Our second series of audits were completed in calendar year 1993. These audits addressed FAA's inventory of spare aircraft parts used on its fleet and the effectiveness of FAA's surveillance and approval process for accepting foreign manufactured aircraft parts. Our audit of FAA's inventory showed that about 39 percent of line items in its inventory, at the Logistic Center in Oklahoma City, contained parts not manufactured by, or traceable to, FAA-approved manufacturers. This condition occurred because of ineffective inspections of incoming parts, inadequate contract requirements, unreliable vendor sources, and incomplete quality control inspections. Consequently, parts not conforming to aircraft certification requirements, were installed on FAA aircraft. FAA agreed with this finding and indicated that it would take appropriate corrective actions. As a result of our audit, FAA made a physical review of its entire inventory and rejected 56 percent of the inventory. The rejected inventory had a value of $6 million. FAA initiated action to research the rejected parts in order to obtain appropriate certification paperwork from commercial manufacturers and distributors files. FAA has completed research on about 82 percent of the rejected parts and accepted 16 percent.

Our audit of foreign manufactured parts showed that although FAA had established well defined foreign manufacturer surveillance requirements, it had not followed its procedures in identifying priority parts and determining the need to perform surveillance of foreign manufacturers. This condition existed because inspection resources were not available to identify supplies of priority parts or to perform surveillance of foreign suppliers to the extent required by FAA's production approval and surveillance procedures. As a result, FAA had no reasonable assurance that foreign manufactured priority parts were manufactured or inspected in accordance with applicable procedures or approved designs. FAA agreed with our conclusions and indicated it would determine the resources necessary to perform its oversight mission. FAA implied that it would comply with its regulatory responsibilities.

PMA OVERSIGHT

Our most recent two audit reports were issued in 1994. One of these audits evaluated FAA's program for granting PMAs, its surveillance to ensure manufacturers with PMAs comply with authority given them, and the accuracy of the PMA identification system. We concluded that the aviation industry ignored Federal requirements for obtaining PMAs from FAA. OIG and FAA reviews identified a systemic problem of manufacturers producing and selling replacement aircraft parts without PMA authority. Many of those manufacturers are original equipment manufacturers (OEMs) who in addition to supplying parts to certificate holders also supplied parts and materials to other than certificate holders. Being an OEM does not satisfy FAA parts approval requirements. OEM parts supplied to certificate holders are inspected and tested by the certificate holder. OEM parts produced and sold to other than certificate holders are not subject to the same level of inspections and tests. We also concluded that the FAA identification system of PMAs was incomplete and inaccurate making it extremely difficult for anyone to know the authorized parts manufacturers. FAA agreed with our conclusions and indicated that corrective actions would be taken. On February 27, 1995, FAA issued a notice in the Federal Register. It said in part:

> "In the past few years, there has been increased awareness of, and concern about, the use of unapproved parts on aircraft. It is not acceptable for persons to produce parts without complying with Federal Aviation Regulations (14 C.F.R. 21.3030(a)). It is the FAA's intention to ensure that all persons who produce parts for sale for installation on type certificated products comply with the regulations. The FAA recognizes that some producers may have relied on previous FAA statements and practices regarding

> enforcement of the rule.[13] Therefore, the FAA is publishing this notice to ensure industry-wide awareness of the agency's intent to enforce the regulations governing all persons who produce modification or replacement parts for sale for installation on type certificated products."[14]

REPAIR STATIONS

The second audit examined FAA's surveillance and regulation of foreign and domestic repair stations. We concluded that FAA has an adequate certification process for new repair stations. Also, FAA aviation safety inspectors accomplished approximately 98 percent of the required domestic and 99 percent of required foreign station annual surveillance inspections, tracked repair station violations, and recorded inspection results. However, our audit of 4 Flight Standards District Offices, 2 International Field Offices, 4 domestic and 10 foreign FAA-approved repair stations disclosed use of aircraft parts of unknown design, quality and origin; outdated repair manuals; substitute parts not approved by manufacturers; and parts repaired by subcontractors not approved by the FAA. At 12 of the repair stations we reviewed, of the parts sampled, 43 percent of all newly purchased parts and 95 percent of the parts purchased from distributors or brokers did not have reasonable evidence of either FAA production approval status, production origin, or conformance with established U.S. or industry specifications. Likewise, we also found: 5 repair stations used 11 outdated manufacturers' maintenance manuals for 47 repairs; 8 repair stations used 27 types of parts not listed in the most current manufacturers' maintenance manuals; and 3 repair stations subcontracted repair of 16 types of parts to repair stations not regulated by the FAA. As a result, owners and operators did not have reasonable assurance aircraft maintenance and repairs conformed with FAA aircraft airworthiness certificate requirements for type design and condition of safe operation.

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[13] Or rather FAA's non-enforcement of the regulations.

[14] It should be noted, however, that in its rush in pushing PMAs out the door, FAA has not made provision to provide the necessary oversight of the manufacturing processes and standards of the new PMA holders. Thus, FAA has indicated it will award PMAs to anyone providing acceptable drawings and stating it has the required manufacturing, testing, and capabilities, but FAA is not verifying any such statements in handing out the PMAs. Also unanswered is the issue of previous noncompliance manufacturing by entities who now seek PMAs. What will happen to the unapproved parts previously manufactured and sold without a PMA? Were any sold to carriers or other operators? Were any installed on aircraft? Are the PMA applicants who previously manufactured unapproved parts not required to account for these parts and notify purchasers as a precursor to becoming an FAA approved PMA?
The industry has also criticized the FAA's PMA procedures because PMA applicants are allowed to submit drawings, including those of other manufacturers, without accounting for where they obtained the drawings. This procedure promotes copyright and patent violations, and, in earlier rulemaking, was objected to by the Department of Justice. At least one manufacturer is suing the FAA.

Our audit also disclosed the need to improve the clarity of the FARs and FAA technical guidance, the prioritization of surveillance inspections, and the quality of surveillance inspections and reports. We concluded FAA's internal control system of regulations, technical guidance, and surveillance activities needed to be revised to provide more reasonable assurance that repair stations performed aviation repairs with approved parts and procedures. Because these weaknesses could adversely affect the DOT and the public, we concluded that the weaknesses we identified met the DOT materiality criteria and should be reported to the Secretary for inclusion in his report to the President and Congress on management controls as required by the Federal Managers' Financial Integrity Act of 1982.

We focused our recommendations to address three areas of weakness. We made six recommendations designed to provide better assurance that replacement aircraft parts are FAA-approved, four recommendations designed to provide better targeting of repair stations for FAA surveillance, and five recommendations designed to improve FAA surveillance of repair stations.

The FAA Administrator concurred with six recommendations, partially concurred with three recommendations and did not concur with six recommendations. To provide better assurance that replacement aircraft parts are approved by FAA, the Administrator agreed to revise an advisory circular and clarify, or study clarification of, FAA regulations. He also suggested development of a voluntary accreditation program for distributors and brokers. To provide better targeting of repair stations for FAA surveillance, the Administrator agreed to redefine repair station ratings, identify safety trends, and train inspectors in areas of repair station weaknesses. However, he did not agree to require domestic repair stations to submit data regarding the volume or criticality of aircraft repairs. To improve FAA surveillance of repair stations, the FAA Administrator agreed to increase documentation required of inspectors. However, he did not agree to assess repair quality or to test repair station output. Likewise, he did not agree to specify consistent amounts or types of inspection tests or to clarify follow-up requirements.

On May 6, 1994, FAA responded to our final report and request for additional information. Although FAA's response reaffirmed its previous position on every audit recommendation, supplementary data provided in the response allowed us to close two recommendations. However, nine recommendations are still open. Although extensive, FAA's response focused primarily upon issues associated with the traceability and substitution of aircraft parts and the examples used in the audit report to illustrate traceability and substitution issues. On November 9, 1994, we provided FAA supplementary information and comments on the issues raised in its response and examples of breakdowns in FAA's control system. We requested the FAA to again reconsider its responses. We have not received a response to our request. We referred the unresolved issues to the DOT Resolution Official on February 17, 1995.

The points we raised in our November letter to FAA are summarized below.

REPAIR STATIONS SELECTED

FAA questioned whether our audit sample of 14 repair stations provided a representative picture of FAA certified repair stations. We advised FAA that the repair stations we selected for audit provided repaired products to FARs Part 121 and Part 135 operators. We selected to test 14 of 4,700 certified repair stations for several reasons. Determining the scope of an audit requires OIG to balance the need to do enough testing to provide sufficient and relevant information to support our conclusions against the need to conserve OIG resources by minimizing unnecessary testing. The scope was also influenced by our need to provide timely reporting and to avoid the perception of OIG sensationalizing issues by unnecessarily accumulating large numbers. In our test of 14 repair stations, we reviewed some 587 different parts.

For the audit of aircraft repair stations, our ability to select stations for testing was limited because of lack of information about the criticality and volume of repairs made by each station. We identified this constraint during the initial stages of our audit through discussions with FAA officials, review of FAA and industry computerized data sources, and detailed review of paper certification and inspection files at four Flight Standards District Offices (FSDO). The four FSDOs were responsible for 548 repair stations. Because we found FAA's system for classifying repair station capabilities was vague and lacked information on the volume or criticality of repairs performed, we recommended FAA improve its regulatory system for classifying repair station authorizations and maintain data on volume and repair criticality. FAA agreed to revise its regulations for station repair ratings, but has not agreed that volume of critical repairs is necessary for surveillance.

In the absence of criticality and volume information, we consulted with FAA and industry officials. We were advised that repairs of aircraft accessories (one type of repair station rating) were frequent and these components were important to the safe operation of aircraft. We found that the largest concentration of repair stations in the Southern Region was in Miami, Florida, where approximately 250 stations are located. We determined that this group represented 40 percent of stations with accessories ratings in the Southern Region. For detailed audit testing, we chose four stations from this group used to perform repairs for a major Part 121 operator.

During our initial work, FAA officials advised us that foreign repair stations, unlike their domestic counterparts, were required to be recertified every 2 years and submit activity reports on repairs made to U.S. aircraft. We selected the African, Middle East, and European Region, because it had cognizance over 60 percent of all foreign repair stations. We visited the two International Field Offices in this region and reviewed all of their paper files documenting certification and inspection of foreign repair stations. Based upon activity reports available in these files, we selected 10 foreign repair stations active in the repair of critical U.S. aircraft components including engines, constant speed drives, starters, and actuators.

OIG weighed the need for sufficient testing against economical use of our resources, and the need for timely reporting of issues relating to public safety. We concluded that data developed at the 14 repair stations was sufficient to demonstrate significant problems associated with:

- inability to trace parts to manufacturers,
- unapproved substitution of parts,
- use of outdated repair manuals,
- use of unapproved parts from unauthorized manufacturers, and
- subcontracting to unauthorized repair facilities.

Notwithstanding our confidence in the adequacy of the audit tests, we advised the Administrator that we were prepared to reopen our audit and expand coverage to include additional repair stations, jointly selected and jointly reviewed, if necessary, to resolve our differences.

Traceability and Substitution of Aircraft Parts

In its response to our report, FAA attempted to discredit the audit, asserting we applied criteria different from FARs and FAA written guidance. Our criteria was consistent with both the FARs and FAA guidance. FAA and OIG agree that maintenance and repairs are to be of equal, or better, quality than the originally certified aircraft. FAA and OIG further agree the FARs require all parts replaced on an aircraft to be produced by a manufacturing process approved by FAA. FAA Advisory Circular (AC) 8300.10 dated December 14, 1990, states that an operator using a part of unknown quality, condition, or origin should prove conclusively such parts conform to the quality FAA approved for the original aircraft manufacturer. Likewise, AC 20-62C, dated August 26, 1976, states that an unidentified part should be identified by the manufacturer or a person possessing the required data to certify the part meets standards to which it was manufactured. It further states that the user of the part should have knowledge of the manufacturer because copied ". . . parts appear to be as good as the original part; however, there are many unknown factors to be considered that may not be readily apparent to the purchaser; i.e., heat treating, plating, inspections, tests, and calibrations. All too often, the faulty part is not discovered until a malfunction or accident occurs."

Using FAA guidance as criteria, we looked for part and/or package markings as well as documentation to establish the part number and its application, identity of the manufacturer, and FAA production approval status or adherence to established industry or U.S. specifications by that manufacturer. If this data could not be provided to us by the repair station, we also asked for any other documentation of data used to find the part in conformance with FAA requirements. Because repair stations were using many parts without knowing the manufacturer or approval status, and without other data to prove conformance, we concluded FAA regulations should be enhanced to require the conclusive proof suggested by FAA advisory circulars. We concluded such enhanced regulatory requirements for traceability of parts would provide more reasonable assurance the regulatory objectives of maintaining aircraft quality and using only approved parts would be met.

CONFORMANCE OF STANDARD PARTS

In its response, FAA did not address the OIG concern about FAA's oversight to determine standard part conformance with industry production standards as required by FAR Part 21.303. FAA provided a detailed explanation of the definition of standard part markings (e.g., AN, MS or NAS) concluding such markings are sufficient evidence of conformance. Our concern is, and has always been, that just because a part is marked with a standard part type number or marking does not prove that the part conforms to the required specification. Without documentation of the manufacturer, FAA cannot hold such companies accountable for poorly made or counterfeit standard parts.

FAA concluded that documentation of the origin of standard parts would not enhance safety. We do not agree. There is no regulatory requirement for a standard part to be restricted to only noncritical aircraft applications. Use of a poorly made, or counterfeit, standard part on a safety critical application in an aircraft could have serious consequences. In fact, Congress enacted legislation in 1990 in reaction to problems associated with nonconforming standard parts. The purpose of the legislation, titled the Fastener Quality Act,[15] is cited as follows: "In order to protect public safety, to deter the introduction of nonconforming fasteners into commerce, to improve the traceability of fasteners used in critical applications, and generally to provide commercial and governmental customers with greater assurance that fasteners meet stated specifications, it is the purpose of this Act to create procedures for the testing, certification, and distribution of certain fasteners used in commerce within the United States." Congress found that, ". . . the purpose and use of nonconforming fasteners stems from material misrepresentations about such fasteners made by certain manufacturers, importers, and distributors engaged in commerce." The Act further states, ". . . the lack of traceability by lot number of fasteners sold in commerce is a serious impediment to effective quality control efforts." FAA regulations currently require standard parts used on aircraft to conform to industry standards, but FAA argues that such conformance is not important for safety. For FAA regulations to be consistent with this Federal law, FAA should require Production Approval Holders (PAH) to designate those standard parts which are used in critical applications as specific aircraft parts and then deregulate all remaining standard parts used on aircraft. FAA cannot dispute that many crashes have been caused by failed fasteners.

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[15] Public Law 101-592, November 16, 1990.

Furthermore, FAA's SUPs data and procedures are inconsistent with its assertion that standard parts cannot create safety problems. Initially, FAA personnel routinely closed SUPs complaints without investigation, if they were related to standard parts. In fact, FAA initially ignored our SUPs reports relative to standard parts. Recently, however, FAA changed its policy and currently evaluates the safety consequences of the application of standard parts just like all other parts. As the result of this change, FAA initiated a SUPs investigation for a recent complaint regarding a castled steel nut, standard part AN310-5, with alleged inadequate tensile strength and surface finish. FAA personnel judged this part could require "emergency procedures to occur upon failure."

FAA asserts that markings on standard parts are sufficient for mechanics to install them on certified aircraft without knowing who manufactured them. We have found that counterfeit and substandard standard parts typically have such markings. Without traceability, FAA significantly increases the risk of not detecting either counterfeit or substandard parts. The FARs clearly require standard parts to conform to industry standards, but FAA has no established procedures to ensure that they do. In a 1991 criminal investigation,[16] a supplier was found to be modifying commercial grade fasteners and representing them as NAS standard parts. These parts included high strength socket-head cap screws which were subject to long-term fatigue problems when used in high stress aircraft applications. These parts had been installed on commercial aircraft, and one airline was experiencing a high failure rate.

USE OF PARTS NOT IN THE MANUFACTURER'S MANUAL

Contrary to FAA's assertion, we did not use the manufacturer's manual as the sole acceptable documentation for aircraft parts. Whenever a part number used was not consistent with the current manual, we asked the repair stations for an explanation and documentation. Many times repair stations did provide acceptable documentation. When they did not, however, we considered the substitution suspect and requested a technical decision from FAA. In some cases, we uncovered the use of allegedly equivalent parts produced by unauthorized manufacturers. In other cases, FAA retroactively determined that use of different parts was close enough and did not cause a safety problem, but in some cases admitted a "maintenance error" had been made. Overall, the examples of substitution of unapproved parts, maintenance errors, and use of

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[16] Standard Part NAS 1352 purchased from a supplier.

"close enough" parts supported our position that substitutions should be explained and documented at the time of use rather than rationalized after use.

AUDITS IN PROCESS

We currently have two major audits of FAA safety oversight programs in process. One is evaluating FAA's SUPs program, and the other, just started, is a followup of our prior audit of FAA's inspection program for commercial aircraft. The SUPs audit objectives are to determine whether SUP reports conveyed to FAA are timely entered and properly accounted for in the SUP data base, SUP reports are timely and effectively screened and investigated, and SUP report results are timely and effectively communicated to the aviation industry and FAA regulatory officials responsible for corrective actions.

We found the SUP database is incomplete and inaccurate. We found 11 of 14 SUP reports submitted by major air carriers, and 5 of 12 Department of Defense safety alerts concerning standard parts, were not entered into the data base and not assigned for investigation. We have determined FAA has not established objectives or measurable goals for the SUP program. As a result, its investigative procedures and processes are inconsistent and incomplete and FAA has missed opportunities to purge unapproved parts from industry inventories, and has not consistently notified the industry of such parts. The following case illustrates these problems:

Through a series of three SUP reports, FAA has been aware of a West Coast firm manufacturing and repairing critical aviation parts without FAA approval for 3 years.[17] The firm specializes in electronic switches and relays critical to airworthiness. Tests of some of these parts demonstrated that they are substandard and should not be installed in flight critical applications.

The first of the three SUP cases related to this firm was closed by FAA when it advised the firm to get FAA approval for its activities. The second case was closed with no record of investigation or rationale for its closing. The third case remains open. In the interim, the firm continues to sell unapproved parts, the number and location of such critical aircraft parts has not been determined by FAA, and FAA has not notified the industry of substandard critical parts. A more detailed summary of FAA's action in the case is included at Exhibit 4.

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[17] This case, D&D Air, Incorporated, was the subject of a recent OIG indictment and conviction, and is summarized in the case summaries at Exhibit 2, under the Omni Machine Corporation investigation.

REPORTS TO THE FAA ON MAINTENANCE AND DESIGN PROBLEMS

Our inspections and evaluations team examined another targeted area of the problem. If bogus parts are not stopped before they enter the system, what are the chances they could be detected through reports of problems to the FAA? We evaluated how FAA identifies and reports problems, researches suspected problems, and issues rules or develops alternative corrections. We found FAA does not adequately oversee its engineer's activities and decisions for several reasons: (1) no formal system exists to ensure aircraft problems do not fall into a "black hole"; (2) no adequate mechanism exists to enable FAA to recall incidents other than by engineers' memories; (3) FAA's Service Difficulty Reporting (SDR) Reports are incomplete, with omissions of information as high as 98 percent; and (4) the Transport Airplane Directorate makes limited use of, and has no requirements for, trend analysis. We also found information on aircraft problems in the FAA database is seriously incomplete.

That report is included in its entirety, with FAA's response as part of Exhibit 3.

A LOOK AT FAA SUPS STATISTICS

Putting aside for the moment the OIG findings documenting a SUPs problem that is widespread and could effect safety, and an inadequate FAA response, a review of the FAA's own statistics lead to exactly the same conclusion. Since October 1, 1994 (FY 1995), a total of 212 suspect unapproved parts reports have been submitted to the FAA. Each part report can represent dozens, hundreds, or thousands of parts. Of the reports on file with FAA, 153, or 72 percent of the reports, have potential safety implications.

The FAA has established the following six priority categories to help analyze the reports:

1. Priority Category 1:

   The unapproved part could have a direct adverse effect on safety, i.e., the functional failure or resulting secondary damage by itself, will have serious or possibly catastrophic consequences, and might cause the loss of the aircraft, injury to the occupants, or cause risks to other aircraft, persons, or property on the ground.

2. Priority Category 2:

   The unapproved part could have a direct adverse effect on operating capability, i.e., require the flight crew to use abnormal or emergency procedures.

3. Priority Category 3:

   The unapproved part and one additional failure of a backup part of function could have an adverse effect on safety or operating capability.

4. Priority Category 4:

   The failure of the unapproved part is not likely to adversely effect safety or operating capability.

5. Priority Category 5:

   Not a SUP issue.

6. Priority Category 6:

   After a preliminary investigation, the action office was unable to substantiate the reported SUP notification.

The priority categories indicate the effect the SUP could have on an aircraft or on individual parts. The numbers of SUPs reports in each category for FY 1995, are as follows:

1.	Potential catastrophic effect	56 reports
2.	Abnormal emergency procedures	49 reports
3.	One part failure and one more	48 reports
4.	No adverse affect on safety	54 reports
5.	Non-SUP issue	4 reports
6.	Unable to substantiate	1 report

In reality, the actual problem of a unapproved parts is larger than the numbers reflect. Only a small part of the SUPs are reported by the FAA or private industry.

In reviewing all SUP reports for 1994, the largest aviation entity affected by SUP reports was transport aircraft (commercial air carriers). Commercial carriers and commuter type aircraft accounted for 29 percent of the SUPs. An additional 35 percent of the reports affected multiple aircraft (all types). Air carriers appear to be most victimized by the problem, yet carriers submitted, only 20 SUP reports, according to the FAA data bases. From our independent investigation, we do know the carriers submitted many more SUP reports to the FAA which are not reflected in FAA records and databases. Their disposition and disposal by the FAA is a mystery. FAA employees have advised us confidentially that some were simply thrown away--with absolutely no action to determine if there was a problem.

The OIG and repair stations submitted more SUP reports than the FAA. The FAA SUP order only applies to the FAA. The Advisory Circular issued on SUPs is a means of notifying the public and compliance is not mandatory.

California, Florida, and Texas continue to lead in the number of SUP investigations, which is largely a correlation of the density of aviation operators in those states.

To give you a better idea of the reporting situation, we attach several charts at Exhibit 5 compiled with FAA's statistics.

MISSING SUPS REPORTS AND FAILURE TO REFER ALL CRIMINAL INVESTIGATIVE REFERRALS

The FAA also has engaged in activities which will artificially lower the reported number of unapproved parts. Some activities such as throwing away or failing to report SUPs notices we find to be outrageous. Furthermore, on March 1, 1995, the FAA issued a memorandum to all FAA Aircraft Certification Offices, all Manufacturing Inspection Offices and District/Satellite Offices (MIDOs), and all Flight Standards Regional and Satellite Offices (FSDOs) informing them that parts produced under an FAA-approved quality control system by a production approval holder or repaired by an FAA-approved repair source, which departs from type design, are not to be reported or reinvestigated by the FAA SUPs program. Instead, they are to be treated as maintenance issues and reported as a Service Difficulty Report (SDR), or under FAR § 21.3. The effect of this memorandum is to obfuscate the reporting, leaving maintenance and scrap issues--basically all "yellow tag" cases--out of the indices. The effect will be to falsely lower the SUPs numbers, destroy the already poor reporting system, and further lower the very low frequency reporting of SUPs by

FAA. Another consequence of this memorandum will be that such cases will not be reported to OIG for investigation, as the FAA has been forwarding to us the SUPs notices from the database and has refused to allow its personnel to report them directly to us for investigation. The memorandum is included at Exhibit 6.

As discussed above, our evaluation of FAA action on SDRs shows SCRs enter a "black hole." There will be no way for cases to be reported for criminal investigation. This will be welcome news to criminal elements in this country and around the world.

THE REPAIR STATIONS, BROKERS, AND SCRAP

A troublesome trail emerges when scrap, bad brokers, and a repair station willing to circumvent the law converge. A typical scenario is the following: A broker, untrained, unlicensed, noncertificated, and currently unchecked, obtains orders for parts or substitutes the broker can sell as parts. The broker goes to a junkyard and buys scrap parts. Then, the broker takes or sends the parts to a less-than-honest repair station which is willing to make unapproved repairs, such as reworking blades or starters and applying an over spray to cover the unauthorized repair. The repair station or the broker attach a false FAA "yellow tag" (now a Form 8130-3) and the part can be sold to any unsuspecting airline for installation on an airplane. This scenario has been replayed in dozens of our criminal cases.

Our investigations have revealed some common schemes engaged in by brokers and suppliers including:

- Locally manufactured parts without FAA approval in basements, garages, weld shops, etc;
- Repairs made to parts not authorized by the OEM or FAA;
- Change data plates and tags;
- Purchase and supply unapproved parts to industry;
- Reworking parts without OEM approval (cutting, plating, drilling), and using the OEM's original certification; and
- Stamp parts with counterfeit logo of nationally known OEM.

A current trend is to keep the unapproved parts off their premises in the event law enforcement executes a search warrant. This requires even more investigative work prior to obtaining a warrant and makes it difficult to detect what parts are in stock, when an alternate location is being used to store parts.

Our investigations have also revealed repair stations engage in some common schemes such as the following:

- Repair and certify components outside of operating specifications;
- Assemble and certify components containing unauthorized parts supplied by brokers;
- Do not fully disassemble or repair components, but certify as being overhauled (referred to as strip and dip);
- Partially repair components, reusing expensive worn-out parts and replacing the inexpensive parts with unapproved parts;
- Change data plates and yellow tags;
- A slow moving part is modified illegally without approval; and
- Selling parts through a "front" company.

Investigation of a repair station will often be a spin-off of an investigation of the parts broker who supplied parts to the repair station, or uses the repair station to overhaul its parts for sale.

To give you an idea of the size of the problem, there are over 4,900 FAA certified repair stations throughout the world, and countless others making unauthorized repairs. If only 1 percent willingly engage in criminal activity, you have the potential for hundreds of thousands of bad parts to infiltrate the system. In one south Florida investigation, for example, one parts broker, who was having unapproved parts illegally repaired and certified, approached 25 FAA certified repair stations with his illegal scheme. Only two repair stations refused and reported his request to DOT OIG.

The number of brokers is unknown; FAA estimates 2,000 to 5,000; some industry estimates place the number at 20,000. There may be 200,000. With no certification, licensing, registration, training, or minimum required compliance and knowledge of the law, it is impossible to determine who is a broker on any given day. One day you have an entity circumventing the FARs to put potentially hazardous parts on planes. When FAA investigates a SUP report or when we execute a search warrant, the broker ceases doing business, and after the dust settles, it reemerges with a different name. Bad repair stations play the same game by voluntarily surrendering their certificates when the FAA is alerted to problems and comes to inspect. Later, it reapplies for certification under a new name and gets FAA certification.[18]

Photos more graphically depicting the parts and situations we encountered in our investigations are included at Exhibit 7.

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[18] This was exactly the scenario we have in a current investigation.

THE INDUSTRY RESPONSE

Some individuals have attempted to shrug off the issue as a "paperwork problem." This is a misleading statement. FAA's effort to push out PMAs as an answer to the SUPs problem will not solve the bogus part problem. It could even increase problems. Possessing a PMA will not deter a broker-scrap-repair station scheme to violate the law (nor will it stop counterfeiters--it might even help some by giving them a license). Something else must be done to break the cycle. The industry has proposed industry certification of brokers and required destruction of scrap as solutions. Based on our audits and investigations, we think these industry proposals are a big step forward, and we urge their immediate implementation.

Last June, the American Transportation Association (ATA) called for regulation of parts brokers and distributors, a position the OIG has long supported. See Exhibit 8. We applaud the ATA for boldly stepping forward to join in demanding the FAA to do something about the broker problem.

However, until the FAA's oversight and attitude on bogus parts enforcement is improved, this responsibility should not be assigned to the FAA. Our audits have shown that the FAA has failed in its oversight and inspection activities and failed to perform surveillance and inspection of foreign manufactured parts, and refused to do any oversight of brokers.[19] FAA had internally assessed the situation and has concluded its case files show a non-uniform application on how to approach SUP investigations on noncertified facilities, which would include brokers and suppliers. In some instances, FAA returned the allegation because the parts were manufactured by entities not under the authority of the FAA. Some in the FAA took the position that FAA has no leverage or legal responsibility to pursue any investigation against such entities.

The FAA itself internally concluded it had no clear understanding of FAA responsibilities for SUP investigations of noncertified facilities. FAA argues it lacks the resources to accomplish meaningful oversight, even through it has over 3,000 inspectors. To give the FAA more resources before they resolve the significant problems identified by our reviews would only be wasteful of limited Federal resources. The industry should immediately start industry certification. Further delays in waiting for an FAA operational and attitudinal[20] improvement only hurt the industry and could result in disastrous consequences. As summed up internally by the FAA, "There is not a common understanding [in FAA] of what the SUP Program is to accomplish."

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[19] However, on March 30, 1994, the Director, Aircraft Certification Service, AIR-1, instructed the FSDOs that it could take actions against suppliers or distributors who did not hold FAA approval or a certificate. This is the position the OIG has long advocated and has used to make many cases against suppliers/brokers.

THE SCRAP PROBLEM

As described above, the unscrupulous can obtain scrap aircraft parts, with ease, and in some cases for less than a dollar. After a new coat of paint or other unapproved repairs, the part can be resold for hundreds or thousands of dollars.

Photos in Exhibit 7 show some of the bad disposal practices of the industry. Furthermore, aviation junkyards can sell scrap with impunity. The industry working group developed Advisory Circular No. 21-38 to address the issue of the disposition of unsalvageable aircraft parts and materials. Unfortunately, the destruction of unsalvageable parts outlined in this circular, which was adopted by the FAA, is only an advisory, not mandatory. As staff of this Committee learned firsthand, it is not being followed. The GAO in its September 1994 report on DOD commercial practices detailed DOD's contribution to the problem, a situation of which OIG has long been aware of because of the DOD scrap parts netted in our criminal investigations. GAO recommended DOD also mutilate flight critical scrap. DOD rejected this recommendation as being cost prohibitive. See Exhibit 9.

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[20] Statement such as the following suggest a serious attitude problem in the FAA which prevents them from adequately tackling the issue:

"What we have in fact argued, however, that there is no safety problem associated with undocumented parts; there is no safety problem associated with PMA, and we're never had an accident from a counterfeit or fraudulently documented part."

Anthony Broderick, Air Transport World, July 1994, Vol. 31, No. 7, page 40 and following.

". . . 'about a 2' on scale of safety concerns from 1 to 10."

Anthony Broderick, Air Transport World, February 1991, Vol. 28, No. 2, page 38.

THE AIRLINES

The airlines have been victims. Almost all major operators have cooperated with OIG, have welcomed our fraud awareness training, have turned over bogus parts cases, and have helped us in combating unapproved parts.

Very few criminal investigations show criminal activities by major operators. The few schemes we have uncovered include the following:

- Personnel receive kickbacks from vendors and buyers;
- Surplus sales personnel falsify material certifications;
- Airlines supply industry with parts that are beyond economic repair;
- Illegal repairs to unserviceable parts;
- Falsified maintenance records; and
- False inspection reports.

We should note that, for the most part, the operators guilty of criminal schemes are out of business or the criminal activity was engaged in by only a few employees. Major airlines have been very responsive and quick to assist us with our investigations.

THE BOTTOM LINE:
WHAT MAKES AVIATION SAFE?

You may be surprised to know that the FAA has no formal guidance, nor a definition of what constitutes a safety issue or a safety problem, nor is there any FAA guidance material or database information. Since there are no guidelines, no criteria, and no tests, what is a "safety issue" is subjective. Thus, what makes aviation safe is subjective. For example, if you and I were sitting in a two-engine plane flying from New York to London, and the aircraft experiences an engine shutdown, you and I would consider that a safety issue. The pilot would consider that a safety issue. The engine manufacturer considers it to be a safety issue:

> "It could be catastrophic. . . . Even if the engine doesn't break into pieces, one engine failure can still so rattle the crew that tragedy results: A Midwest Express DC-9 crashed in 1985, killing 31 people, when the pilots

> incorrectly responded to the failure of the . . . engine during take-off."[21]

The FAA does not consider the loss of an engine a compromise to safety. Instead the FAA will tell you that counterfeit and fraudulently documented parts have never been cited as a cause or contributing factor in a U.S. transportation accident. They will quote the March 16, 1993, testimony of the National Transportation Safety Board (NTSB) Chairman wherein he stated "In general aviation we have found some accidents where unauthorized parts, not counterfeit parts, were involved in the cause of accidents. . . . "In major transport aircraft, we have not found a causal connection between unauthorized or bogus parts." However, the NTSB data do, indeed, cite bogus parts in connection with some accidents. However, the FAA will deny those statistics as well, and, although it is the responsibility of NTSB, not FAA, to investigate accidents, FAA will tell you they had their own FAA Flight Standards and Aircraft Certification Service in the Office of Accident Investigation review the 11 cases for the period 1989 to 1992 and FAA maintains it was incorrect maintenance action rather than a counterfeit or fraudulently documented part which was the issue.

For some reason, FAA did not want the NTSB accident reports to reflect "bogus parts". FAA requested NTSB correct its data to eliminate the bogus parts category in its reporting. In early 1995, NTSB removed the term "bogus" from the data base and now refers to the data as "unapproved parts, and/or, incorrect parts." The real facts of the data paint a different picture, however, and the data from the FAA's own records is even more alarming then that of the NTSB.

NTSB reports as of May 16, 1995, show the following:

➡ Sixteen accidents involving unapproved parts as a finding or case. Two of those accidents involve transport-category aircraft.

➡ Two hundred and five accidents and incidents involving incorrect parts as a contributing factor. (Because NTSB, at the request of FAA, has changed its way of reporting, individual records now need to be reviewed prior to making a determination if it can be classified as a bogus or unapproved part.)

➡ Sixty-two accidents and one incident involving bogus parts as a supporting factor. (This data was available as of February 25,

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[21] Newsday, quoting a Pratt and Whitney Quality Assurance Specialist, June 14, 1993, page 3.

1994, prior to the new NTSB policy of removing bogus parts from the data base as requested by FAA.)

FAA's own data as of November 16, 1994, shows the following:

- 76 accidents and incidents pertaining to air carrier aircraft where bogus parts were a factor.
- 521 accidents and incidents pertaining to general aviation aircraft where bogus parts were a factor.
- 26 service difficulty reports indicating the word "bogus" in the remarks section.[22]

FAA's reliance on the accident data still does not answer the question, "What makes aviation safe"?

The framers of the statutes, regulations, advisory circulars, and other directives concerning certification of aircraft and parts suggest that at least at one point the FAA considered unapproved parts to be a danger to the system, because a substantial and long-standing body of regulations has required that before a part can be used in an aircraft, it must be approved. FAA says the lack of a large fatal carrier crash, shows there is no safety problem. Former FAA Administrator McArtor summed it better when he admitted he had no way to assess how widely bogus parts are used today: "Unchecked, it could be a serious problem."[23]

Other statements by FAA give a glimpse into what may truly be the existing safety net on this issue. The fact that there have, to date, been no large-scale U.S. carrier disasters is a credit to the engineers at Boeing, McDonnell Douglas, and others, and the redundancy of systems which serve to protect the integrity of the aircraft in the event of a malfunction. FAA has stated this in a different manner: "It is OK for one engine to fail on a multi-engine aircraft, or that aft stage turbine blades can fail without causing extensive damage."

In fact, we have ongoing criminal investigations in which FAA has taken the position that the loss of an engine does not compromise safety, and that even if turbine blades break apart in flight, the engine housing is supposed to contain the shrapnel. That position is rather interesting for a safety-oversight organization. FAA's tendency to define safety issues on a case-by-case basis affords little guidance and, in fact, is the cornerstone of its position that there is no significant problem with unapproved parts.

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[22] One can assume there could have been many, many more such reports, as our inspections showed SDRs go in a "black hole."
[23] The Washington Post, September 22, 1987, page A3.

Perhaps FAA's position and eclectic approach to safety oversight on the bogus parts issue was best described by former Administrator Richards in August 1992, when he stated ". . . even with all the attention these cases have gotten, only a small fraction merit safety-related corrective actions, and only a small fraction of those (one to date) have resulted in indictments. Public statements that give the impression that these are new issues, that there is a growing safety problem, or that the public is somehow threatened by a new breed of criminal activity only served to further depress an industry which hardly needs that help."

Those divided loyalties between aviation safety oversight, and promoting or assisting the industry, strike at the very root of this and many other problems we have flagged for FAA's attention. FAA's various amnesty programs, efforts to avoid strict enforcement actions, activities such as putting out guidance instructing FSDOs and MIDOs not to report certain bogus parts in the SUP data base, failure to report some criminal cases to OIG for prosecution, failure to accomplish many mandatory inspections or meaningful inspections, and a whole host of other shortcomings can be explained, in part, by safety oversight enforcement blurred by promoting the interests of the airline industry.

FAA executives have frequently stated that they must walk a fine line between promoting aviation and ensuring aviation safety. All too frequently, FAA's conclusion has been that enforcement of regulations it has promulgated, for safety reasons, has the effect of impeding aviation; clearly contrary to its responsibility to promote aviation. That conclusion certainly contributes significantly to the issues before this Committee.

Thus, it is not surprising that in response to our repair station audit, the FAA incorrectly alleged they went back and examined the same parts and determined most of them to be approved, or not needing approval. In fact, by and large, they did not look at the same parts, but similar parts. They decided that they were "close enough." It is the OIG position that "close enough" is a near miss, where aviation safety is concerned.

If solutions to the problems this Committee is addressing are not acted on today, and in the near future, the aviation industry and the traveling public may well wonder, as we approach the 21st Century, whether aviation safety is being compromised and who, in fact, is to blame.

Perhaps one FAA investigator said it best:

"It's baffling to me. I don't know what kind of mind you have to have to be engaged in this business for profit and let safety be damned."[24]

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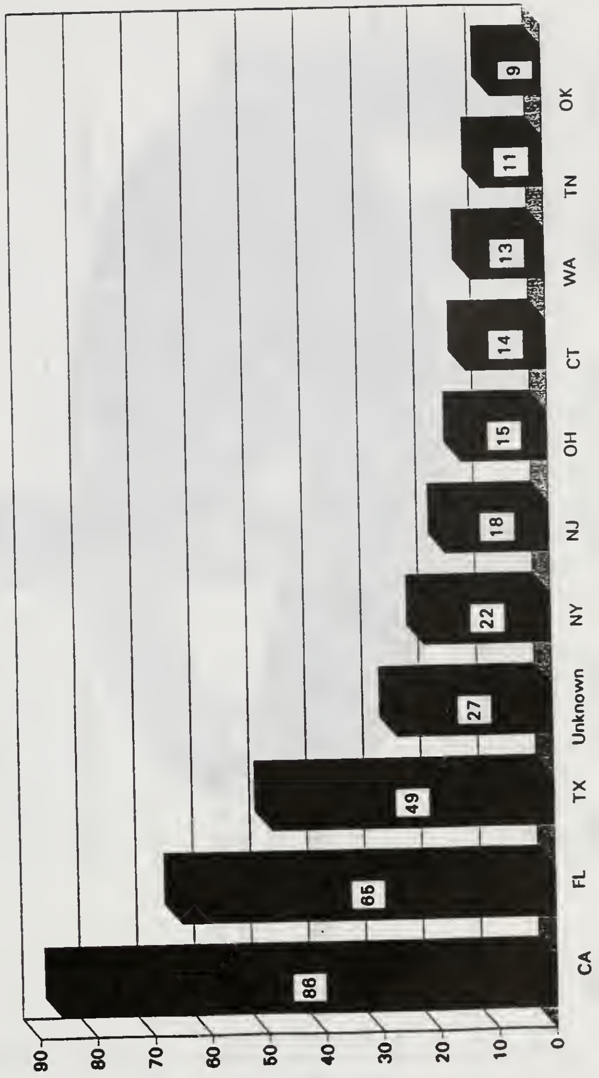
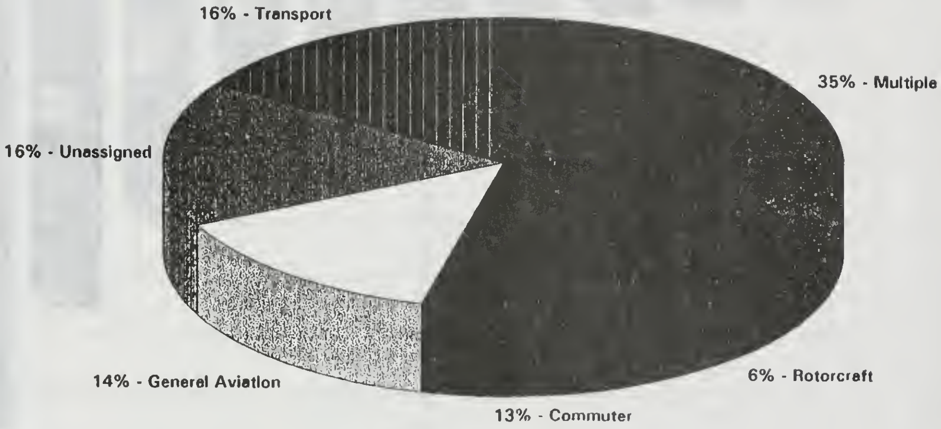
[24] Air Safety Week, June 28, 1993, No. 25, Vol. 7., and Newsday, June 14, 1993, page 3.

Exhibits may be requested from the Office of Inspector General.

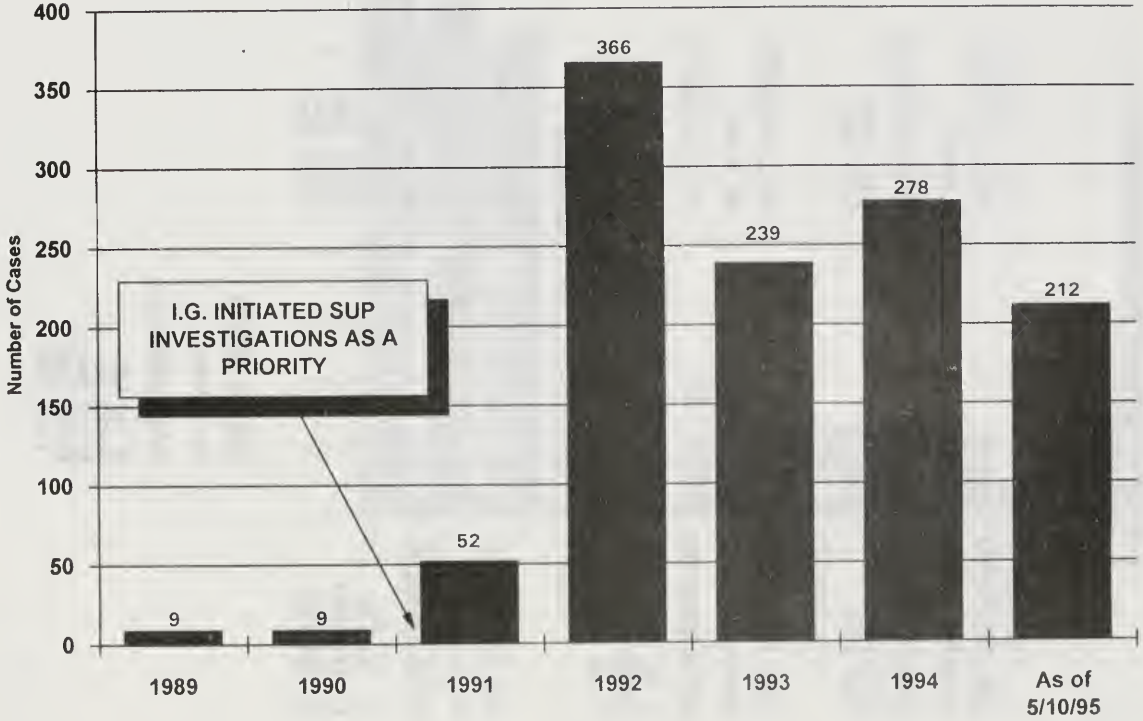
States with Most Investigations for all 1994 Cases



Aircraft Categories for 1994 SUP Cases



Growth of SUP Cases



FAA SUP REPORTS FROM 1989 TO PRESENT

1989 SUP REPORTS

9 REPORTS

Safety Categories (CAT)

3 CAT THREE
6 CAT FOUR

1990 SUP REPORTS

9 REPORTS

Safety Categories

1 CAT THREE
8 CAT FOUR

1991 SUP REPORTS

52 REPORTS

Safety Categories

1 CAT ONE
13 CAT TWO
13 CAT THREE
25 CAT FOUR

1992 SUP REPORTS

362 REPORTS

Safety Categories

10 CAT ONE
69 CAT TWO
88 CAT THREE
172 CAT FOUR
23 CAT FIVE

1993 SUP REPORTS

239 REPORTS

Safety Categories

13 CAT ONE
16 CAT TWO
11 CAT THREE
117 CAT FOUR
82 CAT FIVE

1994 SUP REPORTS

411 REPORTS

Safety Categories

30 CAT ONE
108 CAT TWO
51 CAT THREE
218 CAT FOUR
4 CAT FIVE

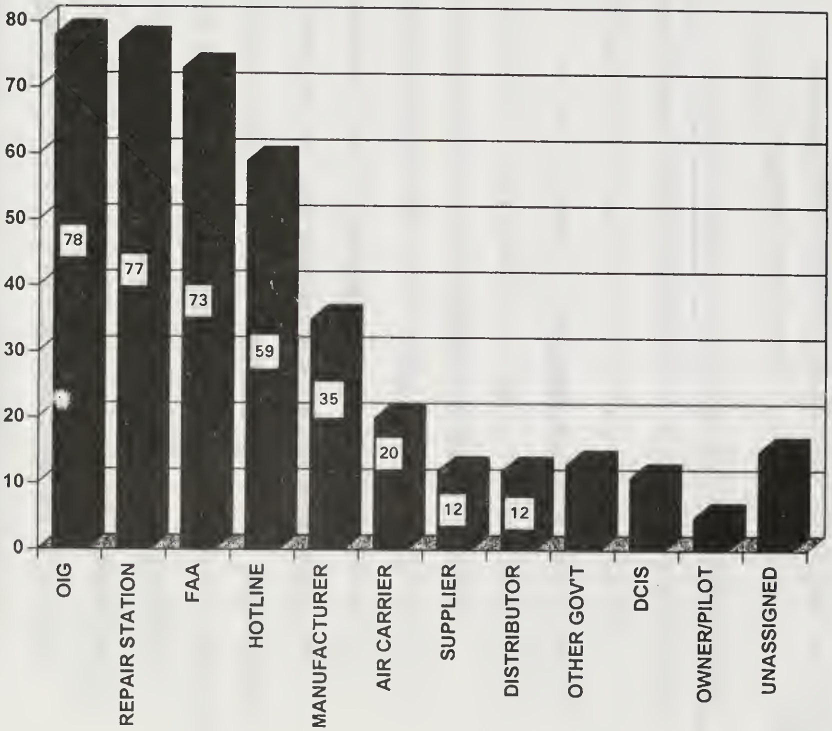
1995 SUP REPORTS

212 REPORTS

Safety Categories

56 CAT ONE
49 CAT TWO
48 CAT THREE
54 CAT FOUR
4 CAT FIVE

Reporters of 1994 SUP Cases



U.S. Department of Justice

Federal Bureau of Investigation

Washington, D.C. 20535

STATEMENT

OF

THOMAS T. KUBIC

CHIEF,

FINANCIAL CRIMES SECTION

FEDERAL BUREAU OF INVESTIGATION

BEFORE THE

SENATE SUBCOMMITTEE ON

OVERSIGHT OF GOVERNMENT

MANAGEMENT AND THE DISTRICT

OF COLUMBIA

WASHINGTON, D.C.

MAY 24, 1995

GOOD MORNING, MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE.

IT IS MY PLEASURE TO BE HERE TODAY REPRESENTING THE FEDERAL BUREAU OF INVESTIGATION AS YOUR COMMITTEE EXAMINES THE ISSUE OF UNAPPROVED AVIATION PARTS.

AS THE COMMITTEE IS AWARE, EVEN THOUGH A GREAT MAJORITY OF PARTS MANUFACTURERS, DISTRIBUTORS, AND REPAIR FACILITIES OPERATE LEGITIMATE BUSINESSES PROVIDING SAFE PRODUCTS FOR USE IN THE REBUILDING OF AIRCRAFT, THOSE PERSONS WHO PRODUCE DEFECTIVE OR SUBSTANDARD AIRCRAFT PARTS PLACE ALL OF THE FLYING PUBLIC AT RISK IN THE INTEREST OF PROFIT. TO DEMONSTRATE THE SIZE OF THIS INDUSTRY, AT THE PRESENT TIME, IN JUST ONE COMPANY SERVING THE AIRCRAFT INDUSTRY AS A PARTS LOCATOR SERVICE, MORE THAN 26 MILLION PARTS ARE BEING OFFERED FOR SALE. IT MUST BE RECOGNIZED FROM THE OUTSET WHEN DISCUSSING THE FBI'S INVOLVEMENT IN INVESTIGATING UNAPPROVED PARTS THAT OUR PRIMARY RESPONSIBILITY IS THE ENFORCEMENT OF CRIMINAL LAWS AS THEY GENERALLY RELATE TO FRAUD AND FALSE STATEMENTS.

ISSUES PERTAINING TO SAFETY, AIRWORTHINESS, AND TESTING ARE NOT WITHIN THE AUTHORITY OF THE FBI. IT IS THE ROLE OF THE FBI, AS PART OF THE OVERALL FBI MISSION, TO ATTEMPT TO DETECT THOSE PERSONS AND COMPANIES WHO DO ENGAGE IN KNOWINGLY AND FRAUDULENTLY MISREPRESENTING PARTS AS TESTED AND APPROVED WHEN IN THEY IN FACT ARE NOT. NOTWITHSTANDING OUR FOCUS ON FRAUD, THE FBI IS MINDFUL OF THE SAFETY IMPLICATIONS OF UNAPPROVED PARTS REACHING THE MARKET. WE HAVE PUT IN PLACE STRINGENT CONTROLS TO ENSURE THAT THE EXISTENCE OF ANY UNAPPROVED PART WHICH IS DETECTED IS IMMEDIATELY COMMUNICATED TO THE APPROPRIATE AUTHORITY.

THE FBI, IN CONJUNCTION WITH THE DEFENSE CRIMINAL INVESTIGATIVE SERVICE, THE INDIVIDUAL MILITARY BRANCH INVESTIGATIVE AGENCIES, AND THE OFFICE OF INSPECTOR GENERAL FOR THE DEPARTMENT OF TRANSPORTATION, IS INVOLVED IN COMPLEX INVESTIGATIONS OF PERSONS AND COMPANIES WHO OFFER TO SELL UNAPPROVED PARTS. THE FBI CONSIDERS THE MULTIAGENCY TASK FORCE APPROACH TO BE INTEGRAL TO THE SUCCESSFUL INVESTIGATION AND

PROSECUTION OF THESE MATTERS. THE UNITED STATES ATTORNEYS OFFICES THROUGHOUT THE COUNTRY HAVE DEDICATED ABLE PROSECUTORS TO THESE INVESTIGATIONS WHO ARE RESOLUTE IN TRYING AND CONVICTING THOSE PERSONS WHO VIOLATE FEDERAL LAWS. THE STATUTES USED IN THE FEDERAL PROSECUTION OF PERSONS KNOWN TO HAVE COMMITTED THESE CRIMES INCLUDE MAIL FRAUD, WIRE FRAUD, FALSE STATEMENTS, CONSPIRACY, MONEY LAUNDERING, AND RICO.

FBI INVESTIGATIONS INVOLVING UNAPPROVED AIRCRAFT PARTS ARE BASED ON INFORMATION RECEIVED THAT DEFECTIVE OR IMPROPERLY DOCUMENTED PARTS HAVE, OR ARE ABOUT TO, ENTER THE SYSTEM USED BY AVIATION INDUSTRY FOR EITHER COMMERCIAL OR MILITARY APPLICATIONS INVOLVING THE CONSTRUCTION OR REFURBISHMENT OF AIRCRAFT. THESE INVESTIGATIVE "LEADS" ARE FOLLOWED TO DETERMINE IF VIOLATIONS OF THE LAW ARE OCCURRING. WHEN POSITIVE IDENTIFICATION OF UNAPPROVED PARTS OCCURS, CONTACT IS MADE WITH EITHER THE FAA OR THE DEPARTMENT OF DEFENSE

TO ENSURE THAT INSTANT NOTIFICATION OF PERSONS OR COMPANIES HAVING POSSESSION OF THESE PARTS CAN OCCUR.

THE FBI MAKES USE OF UNDERCOVER "STING" TECHNIQUES IN AN EFFORT TO MAXIMIZE OUR EFFECTIVENESS IN BOGUS PARTS INVESTIGATIONS. THESE INVESTIGATIONS FOCUS ON PERSONS OR COMPANIES WHO MANUFACTURE OR DISTRIBUTE DEFECTIVE OR UNAPPROVED PARTS. WHILE THE USE OF THE UNDERCOVER INVESTIGATIVE TECHNIQUE HAS PROVEN TO BE VERY EFFECTIVE IN GATHERING EVIDENCE IT DOES NOT IDENTIFY THE OVERALL SCOPE OF THE UNAPPROVED AIRCRAFT PARTS CRIME PROBLEM. THE FBI CONSIDERS VIOLATIONS OF FEDERAL LAW BY PERSONS SELLING DEFECTIVE OR UNAPPROVED PARTS VERY SERIOUSLY AND ACCORDS THESE CASES THE HIGHEST PRIORITY.

IN THE PROCESS OF INVESTIGATING DEFECTIVE AND UNAPPROVED AIRCRAFT PARTS, CERTAIN BASIC FRAUD SCHEMES OCCUR. ONE SCHEME INVOLVES THE CERTIFICATION OF USED PARTS WHICH CAN BE REMANUFACTURED. THESE PARTS ARE CERTIFIED AS BEING REBUILT OR REMANUFACTURED WHEN IN FACT NOTHING HAS BEEN DONE. THESE PARTS RE-ENTER THE

SYSTEMS AFTER A YELLOW TAG IS AFFIXED TO THEM FRAUDULENTLY CERTIFYING THEM AS HAVING BEEN REMANUFACTURED.

A SECOND SCHEME INVOLVES THE REVERSE ENGINEERING OF PARTS WHICH ARE CREATED TO RESEMBLE ORIGINAL PARTS DESIGNED BY THE ORIGINAL MANUFACTURER BUT WHICH MEET NONE OF THE TESTING REQUIREMENTS REQUIRED BY THE FAA OR THE DEPARTMENT OF DEFENSE. THESE PARTS ARE OFTEN PRODUCED BY MACHINE SHOP OPERATORS WHO HAVE NO IDEA OF THE PURPOSE OR CRITICAL NATURE OF THE PART. THESE PARTS ENTER THE SYSTEM AS "NEW" ORIGINAL EQUIPMENT MANUFACTURED "O.E.M." PARTS. THEY ARE FRAUDULENTLY REPRESENTED AS BEING PRODUCED BY THE ORIGINAL MANUFACTURER AND MEETING THEIR TESTING STANDARDS.

A THIRD SCHEME INVOLVES THE PURCHASE OF PARTS FROM SUBCONTRACTORS WHO SUPPLY COMPONENTS TO MAJOR AIRCRAFT MANUFACTURERS. THIS SCHEME INVOLVES THE SUBJECTS PURCHASING OVERRUNS OF PARTS FROM SUBCONTRACTORS OF THE ORIGINAL MANUFACTURER. THIS

INITIALLY WOULD APPEAR TO INVOLVE NO DANGER TO THE FLYING PUBLIC AS THESE PARTS WERE DESIGNED AND PRODUCED ACCORDING TO THE ORIGINAL MANUFACTURERS PLANS. HOWEVER, IN MANY INSTANCES, THE PARTS ACTUALLY PRODUCED FOR THE MANUFACTURER ARE IN FACT REJECTED BY THE MANUFACTURER AFTER TESTING. THE RESULT IS THE ENTRY INTO THE SYSTEM OF PARTS WHICH HAVE BEEN TESTED AND PROVEN DEFECTIVE.

A FOURTH METHOD BY WHICH "BOGUS" PARTS RE-ENTER THE AIRCRAFT PARTS SYSTEM INVOLVES THE RESALE OF SCRAP PARTS. THESE PARTS HAVE BEEN TESTED AND REJECTED AND HAVE HAD A RED TAG AFFIXED TO THEM SIGNIFYING THEIR REJECTION. IN CERTAIN CIRCUMSTANCES, THE PARTS ARE NEVER CAPABLE OF BEING USED ON AN AIRCRAFT AGAIN AS THEY ARE FATIGUED, WORN, OR DAMAGED TO THE POINT OF BEING NONREBUILDABLE. THERE IS NO EXISTING REQUIREMENT THAT THESE PARTS BE DESTROYED. INSTEAD THEY ARE RETURNED TO THE SUPPLIER WHO MAY EITHER DESTROY THEM OR ALTERNATIVELY SEEK TO FRAUDLENTLY HAVE THE SCRAP PARTS RE-ENTER THE SYSTEM AS TESTED AND APPROVED PARTS.

THESE PARTS ARE THEN SOLD TO UNSUSPECTING THIRD PARTIES.

THE FBI CURRENTLY HAS SEVERAL MAJOR UNDERCOVER INVESTIGATIONS INVOLVING "BOGUS" UNAPPROVED PARTS, TWO OF WHICH ARE NOW OVERT AND ONE WHICH HAS RECENTLY RESULTED IN THE CONVICTION OF SEVERAL INDIVIDUALS INVOLVED IN THESE SCHEMES INCLUDING A CONVICTION UNDER THE RICO STATUTE. ADDITIONALLY, THE FBI IS PURSUING HISTORICAL INVESTIGATIONS INVOLVING UNAPPROVED AIRCRAFT PARTS IN MANY FIELD DIVISIONS.

AT THIS TIME, I BELEIVE IT MIGHT BE HELPFUL TO SUMMARIZE ONE OF THOSE INVESTIGATIONS WHICH WAS REPORTED PUBLICLY ON FEBRUARY 8, 1995. THAT CASE, CODENAMED "BARREL ROLL", WAS A JOINT INVESTIGATION CONDUCTED BY THE FBI AND THE DEFENSE CRIMINAL INVESTIGATIVE SERVICE ("DCIS") INTO THE CRIMINAL SALE OF DEFECTIVE, COUNTERFEIT AND FRAUDULENTLY DOCUMENTED AIRCRAFT PARTS TO THE COMMERCIAL AVIATION INDUSTRY AND THE DEPARTMENT OF DEFENSE. ALSO CONTRIBUTING TO THE "BARREL ROLL" INVESTIGATION WERE MEMBERS OF THE OFFICE

OF INSPECTOR GENERAL OF THE DEPARTMENT OF TRANSPORTATION AND THE FAA.

BEGINNING IN 1992, THE FBI TOGETHER WITH THE DCIS INITIATED A CASE CONCERNING REPLACEMENT AIRCRAFT PARTS MANUFACTURERS AND BROKERS WHO WERE SELLING UNAPPROVED AIRCRAFT PARTS TO BOTH THE COMMERCIAL AIRLINE INDUSTRY AND THE DEPARTMENT OF DEFENSE.

THE INVESTIGATION WAS PREDICATED UPON THE RECEIPT OF NUMEROUS COMPLAINANTS FROM A DEFENSE GENERAL SUPPLY CENTER DEPOT AND PURCHASING FACILITY LOCATED IN RICHMOND, VIRGINIA. THE DEPOT HAD RECEIVED A SIGNIFICANT NUMBER OF QUALITY ASSURANCE COMPLAINTS FROM END USERS REGARDING AIRCRAFT PARTS, THE PURCHASE OF WHICH WAS TRACED TO CERTAIN TARGET COMPANIES.

THE FOCUS OF THE INVESTIGATION WAS TO DETERMINE HOW UNAPPROVED PARTS ENTERED THE COMMERCIAL AND MILITARY "SYSTEMS" WITHOUT LEGITIMATE DOCUMENTATION ACKNOWLEDGING THAT THE PARTS HAD BEEN TESTED AND APPROVED ACCORDING TO THE STANDARDS SET BY THE FAA AND THE DEPARTMENT OF DEFENSE. INVESTIGATORS

BEGAN BY ESTABLISHING AN UNDERCOVER BUSINESS WHICH THEY NAMED "SUPPLIES AND SERVICES UNLIMITED". THE PURPOSE OF THE UNDERCOVER BUSINESS WAS TO ACT AS AN AIRCRAFT PARTS MIDDLEMAN OR "BROKER" WHO WOULD PURCHASE AIRCRAFT PARTS FROM MANUFACTURING COMPANIES OR OTHER BROKERS AND RESELL THEM TO COMMERCIAL AIRLINES OR THE MILITARY. THE INVESTIGATORS DETERMINED THEY COULD PURCHASE AIRCRAFT PARTS THAT HAD NEVER BEEN TESTED. THE INVESTIGATORS WERE ALSO ABLE TO BUY PARTS WITH PHONY PAPERWORK ACKNOWLEDGING THE PARTS HAD BEEN TESTED AND APPROVED.

OF THE NINETEEN PARTS PURCHASED IN THE INVESTIGATION, TWELVE FAILED AIRWORTHINESS STANDARD TESTS SIGNIFYING EITHER DEFECTIVE WORKMANSHIP OR THE USE OF INFERIOR MATERIALS OR BOTH. THE TESTING OF THE PARTS WAS CONDUCTED BY COOPERATING ORIGINAL EQUIPMENT PARTS MANUFACTURERS, BY INDEPENDENT LABORATORIES OR AT GOVERNMENT FACILITIES.

TODAY, I HAVE WITH ME SEVERAL OF THE PARTS THAT I HAVE JUST MENTIONED WHICH WERE PURCHASED DURING THE

COURSE OF THE "BARREL ROLL" INVESTIGATION. TO FURTHER ILLUSTRATE ONE OF THE METHODS USED BY THE SUBJECTS OF THIS INVESTIGATION TO HAVE UNAPPROVED PARTS ENTER THE COMMERCIAL AND MILITARY SYSTEMS, I WOULD LIKE TO REVIEW THE HISTORY OF ONE OF THE UNAPPROVED PARTS. I WISH TO EMPHASIZE THIS IS NOT A LEGITIMATE MCDONNELL DOUGLAS PART. MCDONALD DOUGLAS NO LONGER MAKES THIS PART FOR THE DC-8. THE INDUSTRY PRACTICE IS FOR AIRCRAFT MANUFACTURERS SUCH AS MCDONALD DOUGLAS TO ENTER INTO LICENSING AGREEMENTS FOR THE PRODUCTION OF REPLACEMENT PARTS, PARTICULARLY FOR OLDER MODEL AIRCRAFT. THE LICENSEE ASSUMES RESPONSIBILITY FOR THE QUALITY ASSURANCE OF THE REPLACEMENT PARTS.

IN APPROXIMATELY JULY, 1992, A MCDONNELL DOUGLAS CORPORATION LICENSEE OF COMMERCIAL AIRCRAFT PARTS, CONTRACTED WITH A COMPANY KNOWN AS PERFECT PROFILES AND CONTOURS (PPC) OF SANTA ANA CALIFORNIA, TO PRODUCE THIS PART AS A SUBCONTRACTOR. THE PURPOSE OF THIS PART IS TO LOCK THE UNDER WING LANDING GEAR OF THE MCDONNELL DOUGLAS DC-8 INTO PLACE ONCE THE PILOT HAS

LOWERED THE LANDING GEAR FOR LANDING. IT IS KNOWN IN THE INDUSTRY AS A LANDING GEAR BLOCK. UPON THE LICENSEE PLACING THE ORDER FOR PRODUCTION OF THE LANDING GEAR BLOCK WITH PERFECT PROFILES AND CONTOURS (PPC), THAT COMPANY BEGAN ITS PRODUCTION OF THE FIRST OF MANY PROTOTYPES IT WOULD SUBMIT TO THE LICENSEE DURING THE NEXT SEVERAL MONTHS IN AN EFFORT TO MEET THE TEST STANDARDS ESTABLISHED BY THE ORIGINAL MANUFACTURER, MCDONNELL DOUGLAS. DURING THIS PERIOD, AND BEFORE A TESTED AND APPROVED VERSION OF THE LANDING GEAR BLOCK HAD BEEN CREATED. PPC SOLD UNAPPROVED AND UNTESTED COPIES OF THE PART TO A PARTS BROKER IN SAN CLEMENTE KNOWN AS D&D AIR INCORPORATED. THEREAFTER, SUPPLIES AND SERVICES UNLIMITED, THE FBI UNDERCOVER BUSINESS, PLACED A PURCHASE ORDER WITH D&D AIR FOR A MCDONALD DOUGLAS LANDING GEAR BLOCK CONDITIONAL UPON ALSO RECEIVING THE PAPERWORK THAT WOULD NORMALLY ACCOMPANY AN APPROVED, LEGITIMATE VERSION OF THE PART. D&D AIR SUPPLIED BOTH THE PART AND THE APPROVAL PAPERWORK TO THE UNDERCOVER BUSINESS. THIS PART COULD

HAVE BEEN RESOLD TO ANY COMMERCIAL AIRLINE, WHO WITHOUT ANY FURTHER TESTING, WOULD HAVE PLACED THE PART INTO OPERATION. THIS PART WAS LATER TESTED BY MCDONNELL DOUGLAS AND FOUND TO BE OF INFERIOR SIZE AND MATERIAL COMPOSITION.

AS STATED EARLIER, THIS INVESTIGATION WAS SUCCESSFUL. IN THE EXAMPLE GIVEN, THE INDIVIDUAL AND HIS COMPANY WERE EACH CONVICTED OF VIOLATING THE RACKETEER INFLUENCED AND CORRUPT ORGANIZATIONS ("RICO") LAW. THIS LAW WAS PARTICULARLY APPLICABLE TO THE OPERATION OF THIS "BROKERS" ILLICIT NETWORK. THE SUBJECT ESTABLISHED A CRIMINAL ENTERPRISE CONSISTING OF HIS OWN COMPANY, D&D AIR, INC. ACTING AS A BROKER OF SOME 15,000 INDIVIDUAL LINE ITEM AIRCRAFT REPLACEMENT PARTS, AND A NUMBER OF CORRUPT MANUFACTURERS WILLING TO MANUFACTURE AND SELL UNAPPROVED PARTS TO D&D AIR. RECORDS OBTAINED THROUGH A SEARCH OF D&D AIR, INC., REVEALED THE DEVELOPMENT OF THE ILLEGAL ENTERPRISE. IT IS ESTIMATED THAT 90% OF THE BUSINESS WAS IN UNAPPROVED PARTS FOR SALE WITHIN THE UNITED STATES FOR INSTALLATION

ON MILITARY AND FAA CERTIFICATED AIRCRAFT. THE OWNER HIMSELF ADMITTED THAT THE BULK OF BUSINESS WAS IN UNAPPROVED PARTS. DURING THE PERIOD 1990 THROUGH MARCH 1994 D&D AIR, INC. HAD NET SALES OF APPROXIMATELY SIX MILLION DOLLARS AND PROFIT OF APPROXIMATELY TWO MILLION DOLLARS FROM THE SALE OF UNAPPROVED PARTS. THE OWNER WAS SENTENCED TO TWO AND ONE-HALF YEARS IN PRISON AND FINED OVER $260,000. THE DEFENDANT FACED A MAXIMUM STATUTORY TERM OF TWENTY YEARS AND SOME 51 TO 63 MONTHS UNDER FEDERAL GUIDELINES SENTENCING. HE DID COOPERATE WITH INVESTIGATORS AND RECEIVED A REDUCED SENTENCE. HOWEVER, AT SENTENCING UNITED STATES DISTRICT COURT JUDGE JAMES R. SPENCER SAID THAT HE WOULD HAVE DEPARTED UPWARD FROM THE GUIDELINES HAD THE DEFENDANT NOT PROVIDED SUBSTANTIAL ASSISTANCE IN THE INVESTIGATION OF OTHER COMPANIES INVOLVED IN THE "UNAPPROVED PARTS" MARKET. THE COURT EXPLICITLY REFERRED TO THE DEFENDANT'S RECKLESS DISREGARD FOR THE SAFETY OF COMMERCIAL AND MILITARY AIRCRAFT AND THE SCOPE OF HIS CRIMINAL ENTERPRISE. D&D AIR, WHICH WAS

ALSO CONVICTED OF RICO, FORFEITED APPROXIMATELY 12.5 MILLION DOLLARS WORTH OF UNAPPROVED AIRCRAFT PARTS AND THE D&D FACILITY, ESTIMATED TO BE WORTH OVER ONE-HALF A MILLION DOLLARS. THE COURT ALSO DIRECTED THAT THE REMAINDER OF D&D'S INVENTORY, PARTS INSPECTED AND RECOGNIZED AS LEGAL RECENTLY BY THE FAA AND THE DOD, BE SOLD AND THE MONIES PAID AS A FINE TO THE UNITED STATES. THE ESTIMATED VALUE OF THESE ADDITIONAL PARTS IS ALMOST THREE MILLION DOLLARS.

THE CASES RESULTING FROM THIS INVESTIGATION ARE CONTINUING AND WE EXPECT FURTHER SUCCESSFUL PROSECUTIONS NOT ONLY IN RICHMOND, BUT ALSO IN OTHER INVESTIGATIONS BEING UNDERTAKEN NATIONWIDE IN THE NEAR FUTURE.

MR. CHAIRMAN, I WANT TO THANK YOU FOR THIS OPPORTUNITY TO TESTIFY TODAY. I WOULD WELCOME ANY QUESTIONS YOU MAY HAVE.

Phone Call #1

GEORGE: Well, what ah, what do you do down there?

LINDA: I'm one of those nasty people they call brokers.

GEORGE: Oh no, that's okay...

LINDA: (laughs)

GEORGE: I'm just, I'm not, you know, just between me and you, I'm not supposed to sell to somebody like you. You know that, right?

LINDA: No, I didn't know that.

GEORGE: Well, you know it now.

LINDA: Uh...

GEORGE: But it don't matter to me.

LINDA: Okay.

GEORGE: Because I, I have other people like ah AVMAT, SOUTHERN UTAH, D&D, and they're all like you.

LINDA: Uh huh.

GEORGE: And, and RELY TECH and NORCA and PACKSTAR (phonetic) and H&R, I don't know where all come from, it don't matter to me.

LINDA: Yeah, well, are...

GEORGE: Because I get letters from DOUGLAS, BOEING and all of them ah, not authorized to sell to unauthorized dealers and this and that and you know, and as far as I'm concerned how do I know who you are?

LINDA: Yeah, really.

GEORGE: You know what I mean? It's none of my business, so...

LINDA: Uh huh (laughs).

GEORGE: But anyway, that's up to you, you want to give us an order you know...

Phone Call #2

LINDA: Oh, Okay.

GEORGE: You know I mean that's the way he likes it. He thinks everything is gonna fall his way.

LINDA: Yeah.

GEORGE: And he's making a killing. The guy has always got money.

LINDA: Uh huh.

GEORGE: And it's just him and his wife.

LINDA: Oh.

GEORGE: And ah, you know the guy...What he does...And he's got more contacts than you do. Every time I get an order from DOUGLAS,...

LINDA: Yeah.

GEORGE: For a DC-8, 9, 10 whatever...

LINDA: Uh huh.

GEORGE: And I run 200 of em for $14, $15...

LINDA: Yeah.

GEORGE: He throws in 20 more.

LINDA: Oh.

GEORGE: For $12 or $14.

LINDA: Yeah.

GEORGE: Then he stocks em. So, that he doesn't have to pay $200, $300 for bushing...

LINDA: Right.

GEORGE: Because that's what it would take to run two or three.

LINDA: Right.

GEORGE: He gets em done for practically nothing. But he still sells 'em for a grand or whatever he can get.

Mr. Chairman and members of the subcommittee,

My name is Gabriel Kish. I am a former owner of 2 repair stations in south Florida.

Aerostar Aviation applied for a limited repair station certificate on or about August 1987 to overhaul and repair Constant Speed Drives (C.S.D.s). Aerostar submitted its procedure manual and all required FAA paperwork.

On or about October 15, 1987, Aerostar Aviation was granted a limited rated repair station certificate #705-117. Our designated inspector from the local FAA Flight Standards District Office delivered our certificate. A brief walk through was conducted. No facility inspection was performed. At this time we did not have the equipment to properly overhaul the type of equipment for which we were granted the certificate for. The test equipment was not calibrated or operational. The Inspector did not have the proper knowledge or understanding to detect this condition. In 1988 we applied for a Class I Engine Accessory rating. The certificate was upgraded without any inspection of the facility. We did not even have the equipment for this rating. It was standard practice in the South Florida area to apply for as many ratings as possible to increase business. I personally picked up the Class I certificate from the FAA office. No further inspections were ever conducted by the FAA concerning Aerostar Aviation. Our local Inspector did appear on two other occasions to have coffee with my secretary and tried to make a lunch date. No inspections were performed on his social visits. Both of his visits were conducted during a week day during work hours.

In 1989 we applied for a change of location and name change from Aerostar Aviation to Air Advantage.

Aerostar Aviation was no longer a viable company. I was involved in many illegal activities from stolen parts to improper overhauls and so on so I needed to change its name. In 1990 Air Advantage received its new certificate and I completed the move. The certificate was hand delivered to my new location by a different inspector. He did not perform any inspection or walk through. As before, my equipment was not operational or calibrated.

Air Advantage was involved in stolen parts and improper overhauls. I also went to a local machine shop on one occasion and had parts made. Air Advantage dealt with many brokers in the Miami area and no questions were ever asked. They knew the type of parts they were purchasing. The FAA never actually inspected my facility at any time. In late 1991 a new FAA inspector came to my facility and was looking for paperwork on CSDs, starters and generators. I informed the inspector that the FBI had seized all of the documents during a search warrant. The inspector and I walked into the rebuild shop and did a walk around. The inspector stopped at an aircraft starter that I said had been sent by Classic Aviation for overhaul. He inspected the starter and asked various questions on its origin and possible bogus parts. I informed him it was a Classic Aviation part and that he could have it. He said he would like to take it and I signed a release. The following day he returned with another person and after a brief conversation he suggested I surrender my repair station certificate and I agreed. I gave him the certificate and they departed. I was never fined and still hold my FAA license.

The FAA issued an alert concerning my activities with Classic Aviation. One distributor that I sold parts to faxed me a copy of the alert and later stopped by my repair station and told me to destroy my paperwork. He continued to buy parts from me even after I gave up my certificate. I also continued to send parts to other parts distributors. All the repair station owners I knew and talked to had no fear of the FAA. The part distributors are not regulated and gave no concern about the FAA.

This concludes my testimony and I will be happy to answer any questions you may have.

Thank-you.

STATEMENT OF
HARRY SCHAEFER
SPECIAL AGENT
OFFICE OF INSPECTOR GENERAL
U.S. DEPARTMENT OF TRANSPORTATION

BEFORE THE UNITED STATES SENATE,
COMMITTEE OF GOVERNMENTAL AFFAIRS,
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT
MAY 24, 1995

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE THIS SUBCOMMITTEE.

SINCE 1990, I HAVE INVESTIGATED AND SUPERVISED NUMEROUS CASES INVOLVING UNAPPROVED PARTS. THE PARTS THAT WE HAVE HERE ON DISPLAY REPRESENT A SAMPLING OF CASES THE OIG HAS INVESTIGATED. THESE INVESTIGATIONS ARE OFTEN SUCCESSFUL DUE TO THE ASSISTANCE OF COOPERATING WITNESSES, INCLUDING MR. KISH WHO WILL TESTIFY AFTER [illegible]. SOME OF THESE PARTS ON DISPLAY WERE ILLEGALLY RETURNED TO SERVICE BY MR. KISH USING THE AUTHORITY OF HIS FAA CERTIFICATE.

THE USE OF COOPERATING WITNESSES, INFORMANTS, AND DEFENDANTS WHO HAVE NEGOTIATED A PLEA AGREEMENT WITH THE

COURT IS ONE METHOD USED TO ASSIST LAW ENFORCEMENT IN THE INVESTIGATION AND PROSECUTION OF PERSONS WHO PLAYED MAJOR ROLES IN THE CRIMINAL ACTIVITY RELATING TO UNAPPROVED PARTS. WE SOMETIMES MAY NOT LIKE TO NEGOTIATE WITH INDIVIDUALS WHO HAVE BROKEN THE LAW, BUT THESE INDIVIDUALS PROVIDE TREMENDOUS INSIGHT INTO ILLICIT ACTIVITIES CONCERNING UNAPPROVED PARTS . THEIR ASSISTANCE IS INVALUABLE IN PROVING THESE CRIMES.

MR. KISH IS A FORMER REPAIR STATION OWNER AND OPERATOR WHO PLED GUILTY TO CONSPIRACY TO ISSUE FALSE MAINTENANCE RELEASE STATEMENTS. ESSENTIALLY, MR. KISH CONSPIRED WITH A PARTS DISTRIBUTOR IN SOUTH FLORIDA TO CONDUCT ILLEGAL REPAIRS ON ACCESSORIES. THE ENGINE PARTS WERE THEN CERTIFIED AS MEETING FAA REQUIREMENTS.

MR. KISH SUBSEQUENTLY COOPERATED WITH THE GOVERNMENT AND TESTIFIED AGAINST THE PARTS DISTRIBUTOR AT TRIAL. THE DISTRIBUTOR WAS CONVICTED AND SENTENCED TO 33 MONTHS IN FEDERAL PRISON.

DURING THE DISTRIBUTOR'S SENTENCING HEARING, THE JUDGE STATED THAT THE CRIMES COMMITTED BY MR. KISH AND HIS CO-COSPIRATOR WERE VERY SERIOUS OFFENSES. THE JUDGE ALSO STATED HE SAW THE FEAR IN THE EYES OF THE JURORS DURING SOME OF THE TESTIMONY AND THAT THESE CRIMES ARE MORE SERIOUS THAN DRUG OFFENSES WHERE THERE IS A 5 YEAR MINIMUM

JAIL SENTENCE REQUIRED. STRONGER MINIMUM SENTENCING WOULD ASSIST US IN OUR FIGHT.

ANOTHER PROBLEM WE FACE IS THAT SOMETIMES DEFENDANTS SEEK THE RETURN OF THE PARTS AFTER THE DISPOSITION OF THEIR CASE. IT IS OFTEN NECESSARY FOR THE U.S. ATTORNEY'S OFFICE TO FILE A FORFEITURE ACTION AND THUS ENGAGE IN YET ANOTHER LEGAL ACTION TO KEEP THE PARTS OUT OF THE SYSTEM.

THE INVESTIGATION OF UNAPPROVED AIRCRAFT PARTS ALSO PRESENTS SPECIAL RESOURCE ISSUES FOR THE OFFICE OF INSPECTOR GENERAL. MANY OF THE CONSPIRACIES UNCOVERED IN OUR INVESTIGATIONS CROSS STATE, REGIONAL, AND SOMETIMES NATIONAL BOUNDARIES AND TRULY INVOLVE NATIONWIDE EFFORTS BY THE OIG TO SUCCESSFULLY COMPLETE THE INVESTIGATION.

IN ADDITION, PERHAPS EVEN MORE SO THAN OTHER WHITE COLLAR CRIME PROBLEMS, THESE INVESTIGATIONS ARE CARRIED OUT OVER SEVERAL YEARS, REQUIRING A STEADY APPLICATION OF INVESTIGATIVE RESOURCES. IN FISCAL YEAR 1991, 9% OF THE OIG'S INVESTIGATIVE RESOURCES WERE APPLIED TO UNAPPROVED AIRCRAFT PARTS. IN THE FOUR SUCCEEDING FISCAL YEARS, INVESTIGATIVE RESOURCES WERE INCREASED AND HELD STEADY AT 24% FOR FY 92; 27% FOR FY 93; 23% FOR FY 94 AND 26% FOR THE CURRENT FISCAL YEAR. THE OIG'S ABILITY TO APPLY ITS RESOURCES TO THESE INVESTIGATIONS AT SUCH A CONSISTENT

LEVEL IS AN IMPORTANT FACTOR TO THE SUCCESS OF THIS PROGRAM.

HOWEVER, WE SIMPLY CANNOT INVESTIGATE ALL THE SUSPECTED UNAPPROVED PARTS CASES THAT NEED TO BE WORKED WITH OUR LIMITED RESOURCES. WE NEED THE HELP OF THE FAA ON THESE CASES.

IF YOU REVIEW THE SUMMARIES OF OUR CRIMINAL INVESTIGATIONS PROVIDED BY THE INSPECTOR GENERAL WITH HER TESTIMONY EARLIER THIS MORNING, YOU WILL NOTE THE HIGH NUMBER OF CASES WHERE THE OIG RECEIVED SIGNIFICANT SUPPORT FROM AVIATION SAFETY INSPECTORS IN THE LOCAL FAA FIELD OFFICES. FAA INSPECTORS WHO ASSIST THE OIG ON CRIMINAL INVESTIGATIONS SERVE TO PROVIDE NECESSARY EXPERTISE AND ADDITIONAL MANPOWER RESOURCES.

FROM MY PERSPECTIVE, AS A SUPERVISOR INVOLVED IN THE DAY-TO-DAY INVESTIGATION OF THESE CASES, IT IS EQUALLY IMPORTANT TO ALSO HAVE THE FAA APPLY A CONSISTENT LEVEL OF RESOURCES TO THESE INVESTIGATIONS.

OVER THE PAST FEW YEARS, THE FIELD INSPECTORS HAVE RECEIVED MIXED SIGNALS WITH RESPECT TO THE FAA'S SUP PROGRAM, RANGING FROM RED LIGHTS TO YELLOW LIGHTS TO GREEN LIGHTS. I KNOW THERE ARE INSPECTORS IN THE FIELD WHO WANT TO BE AS AGGRESSIVE AS WE HAVE BEEN IN ADDRESSING THE

PROBLEM OF UNAPPROVED PARTS. THOSE INSPECTORS NEED A CLEAR, STEADY, GREEN LIGHT FROM FAA HEADQUARTERS ENCOURAGING THEM TO ASSIST THE OIG IN PURGING THE CRIMINAL ELEMENT FROM THE BUSINESS OF AVIATION PARTS.

THIS CONCLUDES MY STATEMENT. THE SUBCOMMITTEE WILL NOW HEAR FROM MR. KISH. HE WILL DISCUSS HOW HE BECAME INVOLVED IN THE ILLEGAL REPAIR OF AIRCRAFT PARTS AND STOLEN PARTS. HE WILL ALSO PROVIDE INSIGHT ON HIS RELATIONSHIP WITH THE FAA AND PARTS DISTRIBUTORS HE DEALT WITH IN SOUTH FLORIDA.

I WOULD ALSO BE HAPPY TO ANSWER ANY QUESTIONS YOU MAY HAVE.

THANK YOU.

STATEMENT
OF

CHESTER PAUL BEACH, JR.

Associate Counsel
Pratt & Whitney Division
United Technologies Corporation

ON BEHALF OF THE
AEROSPACE INDUSTRIES ASSOCIATION

BEFORE THE
SUBCOMMITTEE ON OVERSIGHT OF
GOVERNMENT OPERATIONS
AND THE DISTRICT OF COLUMBIA
COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

MAY 24, 1995

Mr. Chairman, Members of the Subcommittee:

My name is Paul Beach, and I am presently an Associate Counsel at the Pratt & Whitney Division of United Technologies Corporation in East Hartford, Connecticut. As a member of the Aerospace Industries Association, Pratt & Whitney is an active participant in industry efforts concerning unapproved parts, and AIA has asked me to testify on its behalf today in response to the Subcommittee's invitation. On behalf of AIA, I thank the Chairman and the Subcommittee for that invitation, and the opportunity to assist the Subcommittee today in considering this important issue.

Before I turn to the particular questions the Subcommittee has asked, let me take a moment to outline the particular concerns AIA members have regarding the parts which are installed on their products in service by operators and repair stations. First and foremost, of course, we are concerned about safety. As prime manufacturers of large transports, other commercial aircraft, engines and other major items of original equipment, AIA members share a deep sense of responsibility to our customers and the flying public to provide the safest, most dependable products possible. We are, of course, not unique in this respect. We share this concern for safety with our customers, and with the many dedicated professionals throughout all sectors of our industry and our regulatory agencies who work together every day to make our air transportation system the envy of the world.

As designers and manufacturers of end products, AIA members have additional reasons to advocate measures to ensure that spare parts manufactured by other sources for our products are as safe and airworthy as the original equipment parts. Let me mention them briefly:

Risk of Litigation. Prime manufacturers of aircraft, engines, propellers and major components bear a greater risk of litigation than an individual parts manufacturer. Like the owner and operator of the product, we are the deep pocket. Our name is on the product if it fails. Even if we are found not to be liable, under American legal rules we must generally bear the full cost of defending any lawsuit. These costs can easily reach the millions of dollars, including direct expense for litigation assistance and for the expense of supporting the discovery, depositions and other expenses that come with it inside the company.

Risk of Liability. Prime manufacturers also bear a risk of liability even if a failure of their product is caused by a part made by another manufacturer. For example, if an aircraft were to fail over deep ocean, or another location where it could not be recovered for analysis, or if the circumstances of the failure otherwise precluded a precise determination of its cause, the prime manufacturer may reasonably perceive a risk of liability, even if the actual failure were caused by a part made by someone else.

Business Reputation. In addition to the risk of litigation and the risk of liability, prime manufacturers also bear the brunt of risk to business reputation. In the event of a catastrophic failure, news stories will give prominence to identifying the aircraft's operator, the airframe manufacturer and, in the case of an engine failure, the engine manufacturer. Even if, after the National Transportation Safety Board and all other agencies finish their investigations, the cause is determined to be a failed part produced by another manufacturer, there is little chance that that fact will receive the same prominence in the general press as the original headline and story. In any event, it cannot fully erase the impact of the original headline. If one of our products were to fail with such an outcome, we would probably be indelibly associated with it, regardless of the real cause.

Warranty Risk. Finally, and in circumstances where safety is not at issue, prime manufacturers must also be concerned about the warranty risk of failures of parts manufactured by other sources, in circumstances where the part cannot be adequately traced to the source or otherwise be distinguished from the prime manufacturer's part.

As prime manufacturers, AIA members consider the process of FAA design and production approval to be an essential ingredient in ensuring the quality of their products. For the reasons I have just described, AIA members also have a special concern to ensure that spare parts manufactured by others are subject to FAA design approval and production oversight which will provide an equivalent assurance of safety and airworthiness.

With those comments as background, let me address each of the particular issues the Subcommittee asked AIA to consider today.

The Extent To Which Suspected Unapproved Parts (SUPs) Compromise Public Safety

In FAA Advisory Circular 21-29A, "Detecting and Reporting Suspected Unapproved Parts," the FAA has defined the term "suspected unapproved parts," or

"SUPs," to include parts which may actually conform to type design, but which have not been manufactured in accordance with the approval provisions in FAR Part 21 or maintained in accordance with FAR Parts 43 and 145, as well as parts which do not conform to an approved design.

If a part actually conforms to type design and is in condition for safe operation at the time it is installed, the fact that it was not manufactured in accordance with the approval provisions of Part 21 does not necessarily mean that the part is actually sub-standard. The classic example would be a part sold directly to market by a manufacturer who also supplies the part to a production approval holder. If the manufacturer lacks Parts Manufacturer Approval (PMA) or another form of FAA approval and sells the part directly, rather than under the authority of the production approval holder's FAA production certificate, this would be a violation of FAR Part 21.[1] However, it is possible that the part is identical in design and manufacturing quality to the parts the manufacturer supplies to the production approval holder. Having said that, since such a part does not come to market under an FAA-approved and accountable manufacturing quality system, there is no principled basis upon which an end-user may presume that it actually conforms to type design. It is equally possible that the part does not conform to type design in one or more respects. The part manufacturer may, for example, believe the part to be safe, but may not wish to submit it to the production approval holder -- because it would not be accepted, or would require an individual engineering review and determination under FAA-approved Material Review Board procedures before it could be accepted.

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[1] Generally, prime manufacturers of aircraft, engines and propellers produce their products, and spare parts for them, under the authority of a Production Certificate issued by the FAA. The Production Certificate authorizes such manufacturers to produce products to designs which the FAA approves by issuing Type Certificates. FAA Parts Manufacturer Approval is issued to authorize production of spare parts "for sale for installation on type-certificated products," by parties other than Type/Production Certificate Holders, and includes both design and production approval.

The use of parts which do not conform to the type design for the product (an aircraft, engine or propeller) on which they are installed poses some risk that the product will not perform in all respects as intended by its designers. The magnitude of the actual risk will vary from part to part. It will depend to some degree upon the consequences of failure of the part number concerned on the product design on which it is installed. Such consequences may range from no operational impact at all, to increased wear or reduced service life of higher-level assemblies, degradation of performance, or failure of the product itself. The actual risk will also depend upon the nature and extent of the nonconforming characteristics of the part. The nonconforming characteristics of a part may be so minor as to have no impact on the product's performance, or they may be such as to preclude it wholly or partly from performing its intended functions. It is important to note that parts which exceed original part design requirements may in some cases pose as great a risk of adverse impact on the product's performance as those which do not meet minimum requirements.

For the foregoing reasons, it is probably impossible to assess the magnitude of the actual risk that SUPs in the existing civil aviation inventory pose to aviation safety with mathematical certainty, without knowing the full characteristics of that population of parts. What we do know is that there is a substantial population of parts in the existing inventory which are defined as SUPs, yet commercial aviation safety statistics have not suffered. Let me suggest several factors which may help explain that relationship, and which should be relevant to any judgment about the safety risk posed by the fact that there currently exists a population of SUPs:

- In evaluating any estimate of the magnitude of the population of SUPs, it is very important to understand the basis upon which a part is determined to be a SUP. Under current FAA regulations, documentary evidence of a part's manufacturing source and service history is relevant, but not necessarily essential, to determining that a part conforms to type design and is appropriate for installation. Nor are there clear requirements for inventory holders to maintain such documentation. Therefore, in most cases, an absence of documentation regarding a part's origin and service history, standing alone, is not necessarily a strong basis to suspect that it is actually unapproved.

- It is reasonable to conclude that a substantial portion of the parts in current inventories which are actually unapproved are the result of direct sales to market by manufacturers who lack PMA or other FAA approval, but may produce like parts for production approval holders. While there is no principled basis upon which to assume that any particular part not produced under an approved manufacturing quality system actually conforms to type design, the vast majority of these parts probably do.

- The primary risk to safety is posed by counterfeit and other nonconforming parts which are manufactured in secret by unapproved and unqualified producers, who have neither access to type design information nor a moral or economic interest in ensuring that the parts they produce conform to approved data. We have experienced several of these cases at Pratt & Whitney. We consider such cases to be extremely serious, and do all that we can to support the investigation, prosecution, punishment and deterrence of persons who engage in such activities. Fortunately to date, such cases have been infrequent and we do not have any basis to conclude that such parts comprise a substantial portion of the current population of SUPs.

-- Other factors also limit the risk posed by the parts in the existing population of SUPs which do not actually conform to type design. Commercial aircraft, engines and propellers are designed to extraordinary safety margins. They are quite robust in terms of redundancy, and particularly emphasize what we may call "soft" failure modes -- design criteria which facilitate identification of undue wear and failure of parts through regular monitoring and inspection, before any impact on system operation. Those parts which are the most critical to safe operation are often serialized and tracked, and operators often procure them only from the original equipment manufacturer. Well-trained receiving inspectors, bench inspectors and mechanics at operators and repair stations also serve to identify questionable parts before they can be installed.

The factors I have mentioned may help explain why the fact that SUPs exist in the current inventory has not had more of an apparent adverse impact on aviation safety. However, this does not mean that the current Government and private controls over parts design, manufacturing and repair cannot and should not be improved. There is ample evidence from individual cases to support the conclusion that the aviation spare parts market is attractive to counterfeiters and other producers of sub-standard parts. The parts design, manufacturing and repair regulations constitute the first line of defense against sub-standard parts, and they must be soundly designed and vigorously enforced. It's an old adage in the aerospace business that "when you're relying on a backup system, you're already in a place you don't want to be." The fact that we have the backup systems I have mentioned to limit the risk to safety from SUPs should not allow us to be complacent about the necessity to ensure the integrity of FAA approval and oversight of parts design, manufacturing and repair. Before addressing opportunities to strengthen the regulatory system, let me respond to your question about what AIA and its members are doing and can do.

Actions That Have Been Taken By AIA And/Or Its Members To Identify And Reduce The Number Of SUPs In Aviation Inventories

For several years, AIA has vigorously promoted awareness of unapproved parts issues among its members, and has actively participated in industry efforts to improve the system. Individual AIA members who are FAA production approval holders and manufacturers are taking advantage of a number of opportunities to promote compliance with existing regulations governing parts manufacturing. Pratt & Whitney, for example, has implemented the following significant initiatives:

-- Issuance of FAA Form 8130-3 with each shipment of new engines or spare parts, to provide our customers a regulatory "birth certificate" establishing their FAA-approved status.

-- A comprehensive review of Pratt & Whitney's Illustrated Parts Catalogs (IPCs), to ensure that all vendors listed therein as sources for direct purchase of parts have PMA to produce those parts for direct sale to end users. In particular, we have informed all vendors presently listed in our IPCs that Pratt & Whitney will provide a "PMA Assist Letter" and temporary direct ship authority in order to facilitate their applications for the PMA required to maintain their listings in the IPCs. This is consistent with Pratt & Whitney's long-standing practice of providing such assistance to its suppliers in cases where Pratt & Whitney's proprietary rights are not an issue. We are also adding clarifying language to each IPC to ensure that our customers understand that an IPC listing is not a grant of direct ship authority under Pratt & Whitney's production certificate, and that it is the vendor's responsibility to obtain necessary FAA approvals.

-- A Suspected Unapproved Parts Integrated Process Team (SUPs IPT) of functional experts who serve as a single focal point within Pratt & Whitney to coordinate investigation of suspected unapproved parts, provide technical support to the FAA, DOT Inspector General and law enforcement, and develop policies and procedures to combat unapproved, bogus and counterfeit parts.

-- A dedicated audit team and staff within the Pratt & Whitney Legal Department to promote compliance with contractual restrictions intended to prevent "backdoor" sales of unapproved parts by Pratt & Whitney suppliers which are produced using Pratt & Whitney proprietary design information.[2]

-- Visual Parts Mutilation Standards for implementation within Pratt & Whitney and our supplier base, to insure that manufacturing reject parts are properly mutilated to preclude their entry into the parts market.

-- Active participation, with other AIA members, in developing or considering numerous industry-FAA initiatives to improve the regulatory process.

The Adequacy Of The FAA's Inspection Program, And Investigative And Enforcement Actions Related To SUPs, Including The Parts Certification Process

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[2] Such unauthorized sales are also referred to by some as sales of "production overrun" parts.

The concerns AIA members have about the risks posed by parts which do not conform to FAA-approved product designs raise several issues about the adequacy of existing regulations governing parts design and manufacturing, and FAA implementation of them.

Adequacy of Existing Regulations

FAR 21.303 establishes the fundamental requirement that, subject to certain enumerated exceptions, producers of modification and replacement parts who do not sell such parts under the authority of the production approval holder for the product concerned must have PMA. PMA, in turn, consists of design approval and FAA acceptance of a certification that the PMA applicant maintains a fabrication inspection system which meets requirements prescribed to ensure that the parts produced will conform to the approved design. From the standpoint of ensuring safety, prime manufacturers believe that this system of FAA approval should extend to all parts that can affect the safe operation of the product, in a manner that is clear and enforceable.

For the most part, we believe that the present language of FAR 21.303 provides an adequate basis for FAA enforcement in most instances. However, clarity in applying FAR 21.303 is affected by three problems:

-- First, FAR 21.303 may not reach all parts for which safety considerations may warrant FAA manufacturing oversight. For example, "standard parts (such as bolts and nuts) conforming to established industry or U.S. specifications" are expressly exempt from the PMA requirement. Since such designs are generally available to industry without proprietary limitation and must be specified in the type design in order to be eligible for installation, the FAA need not grant design approval for manufacture of such parts. However, PMA also involves certification and continuing FAA oversight of the PMA holder's fabrication inspection system. The critical nature of "nuts and bolts" depends entirely on what they are used for, and the quality of such fasteners has been a continuing issue in the aerospace industry.

-- Second, FAR 21.303 may also be over-inclusive from the standpoint of safety, and this may impede efforts to focus limited attention and resources most efficiently on parts which relate to safety concerns. I am told that a large commercial transport may contain more than a million separate parts, and one can readily imagine many which may relate to the comfort and convenience of passengers, but have no apparent relation to the safe operation of the aircraft. There is no reason why such parts should require FAA design approval and manufacturing oversight, but they are not exempt from the approval requirements of FAR Part 21.

-- Third, and this is a related point, it is sometimes difficult to enforce FAR 21.303 to reach all safety-related parts because of the problem of effectively notifying manufacturers of the requirement. There are many components used aboard aircraft which are not standard parts, but which may not be produced specifically (or even primarily) for commercial aviation applications. Such a part may significantly affect the operation of systems aboard an aircraft, but it may be difficult to establish that the manufacturer knowingly manufactured the part "for sale for installation on a type-certificated product," as would seem to be required to establish a violation of FAR 21.303 if the manufacturer does not have PMA or another form of FAA approval.

The FAA and industry have recognized some of these difficulties for a number of years, and recurring efforts have been made to define "standard parts" more clearly, and to define a category of "commercial parts" which might safely and clearly be exempted from the PMA requirement. Those efforts continue, but an acceptable consensus has been elusive.

These are important points, not only because they have potential consequence in themselves, but also because it will be forever difficult to harmonize FAR Part 21 requirements for FAA production approval with the standard under FAR Part 43 for installing a part unless we can more clearly distinguish parts which must be approved from parts which do not require such approval.

Implementation and Enforcement of Existing Regulations

FAA Advisory Circular 21-303.1A, "Certification Procedures For Products and Parts," provides guidance to PMA applicants and FAA offices administering the PMA process. It was issued almost 23 years ago, provides little substantive guidance, and is in considerable need of revision. AIA members have the following general concerns about the PMA process, which we believe should be addressed in a revision of this Advisory Circular:

-- First, it is very important that a PMA applicant fully demonstrate all characteristics of the part design. This is a particular concern where design approval is sought on the basis that the part design is identical to the approved type design, because such a basis for approval does not require the applicant to demonstrate through testing that the PMA part will equal the prime manufacturer's part in performance and durability. In certain cases, manufacturing process information and other "know-how" critical to parts cannot be ascertained even by the original equipment manufacturer simply from the drawings and specifications called out by the drawings. Such characteristics may be reflected in other documentation available to the original equipment manufacturer, but may be impossible to ascertain through reverse-engineering or other lawful means of attempting to develop an identical design. Therefore, applicants proceeding on the basis of identicality should be very cautious. Current FAA guidance pertaining to the administration of the PMA process does not, in our view, adequately guide either applicants or FAA personnel with respect to the information which must be presented in order to fully demonstrate the design of a part.

-- Second, it is equally important that FAA design review be rigorous and that it be conducted by the best qualified personnel available within the FAA. In this respect, we have several concerns about current policy. The FAA has four specialized product certification directorates -- Transport Aircraft, Engines & Propellers, Rotorcraft and Small Airplanes -- but there is no requirement that a PMA applicant present his application to the FAA directorate most knowledgeable regarding the product on which the part is to be installed. Nor is there any requirement that FAA personnel reviewing the application coordinate with the best experts within the FAA. This is a particular concern because the FAA has recently taken the position in litigation that identical design under FAR 21.303 does not require the applicant to demonstrate complete "line-by-line" identicality of its design. Rather, the FAA has taken the position that identical design for the purpose of administrating FAR 21.303 means "substantially identical with respect to form, fit and function." We know of no internal FAA guidance which establishes, interprets, or guides FAA personnel in the application of this standard. Finally, while we at Pratt & Whitney have great respect for the FAA personnel with whom we work in the engine and propeller directorate, AIA members have noted with some concern a recent assessment by the Department of Transportation Inspector General that the technical skill base within the FAA generally may be eroding as a consequence of retirements, voluntary separations, and overall personnel reductions.

-- Third, we believe it important that the PMA applicant be able to demonstrate a full understanding of the part's relation to its higher assembly and the product on which it is to be installed, and the consequences on them of its failure. It is just as important to establish appropriate maintenance requirements and overhaul limits as it is to establish that a part is safe with respect to its initial operation. It may be inappropriate for a PMA manufacturer simply to assume that "identical design" means that it is safe to refer its customers to the OEM's maintenance and overhaul instructions. This concern is all the greater if "identical design" does not really mean "completely identical" but only "substantially identical" in "form, fit and function."

AIA members participated in an ad hoc industry task force to develop proposed guidance to replace AC 21-303.1A that would address these and other issues. The task force included representatives of a broad spectrum of the industry -- prime manufacturers, PMA parts manufacturers, distributors and repair stations. Developing consensus among such a diverse group of interests is no easy task, but the task force unanimously approved a proposed document -- known colloquially as "8110.XXX" or "8110 Triple-X" -- and provided it to the FAA in December 1993. FAA personnel have assured industry repeatedly over the past year and a-half that new guidance informed by consideration of this proposal would be issued. AIA members continue to believe that 8110.XXX contains sound guidance, which will contribute substantially to the quality and consistency of the FAA's administration of the PMA process if it is issued and faithfully implemented.

AIA members have also been concerned about the ability and commitment of the FAA to investigate violations of FAR 21.303 and enforce its requirements vigorously. In particular, we have noted variation in interpretation and application of the rules among local FAA offices. However, we were encouraged by an FAA memorandum issued last year which resolved some apparent confusion within the FAA by stating clearly and authoritatively that the FAA's authority to investigate and impose civil penalties against manufacturers who violate FAR 21.303 is not limited to those who are FAA certificate holders. We are also generally encouraged by the FAA's recent Federal Register notice declaring an intention to enhance its enforcement posture in the near future. However, we also note that the FAA's resources are increasingly constrained, and we are doubtful that the FAA will be readily able to fulfill this renewed commitment.

After such a lengthy discussion of industry concerns, I would be remiss if I did not also mention a number of FAA initiatives and actions regarding unapproved parts which AIA members appreciate and strongly support:

-- The reporting process for suspected unapproved parts established under AC 21-29A in 1992 has been a positive step, and we at Pratt & Whitney have noted that SUPs reports we file or are aware of are being routed reasonably promptly to local FAA personnel, and those personnel are actively investigating them.

-- In all cases, without exception, FAA personnel have been fully responsive whenever we at Pratt & Whitney have provided information to them which causes us concern that particular SUPs in the system may not in fact conform to type design.

-- The FAA has developed a video on unapproved parts and an excellent Approved Parts Seminar, which it has offered to industry on numerous occasions to increase awareness and promote compliance with FAR requirements. We understand that funding limitations now preclude the FAA from offering the Seminar without cost, but it remains a valuable resource for companies that are able to fund the presentation.

-- It is very important that the FAA maintain appropriate continuing surveillance over the fabrication inspection systems established by PMA manufacturers as well as those of type and production certificate holders. We applaud the FAA's efforts to standardize manufacturer audits through the ACSEP program and related initiatives.

-- A number of AIA members have particular concern regarding the quality of parts which are sold as surplus by elements of the Department of Defense, which may be common to both military and commercial products. AIA members are concerned that such parts generally are not appropriate for installation on FAA type-certificated products, because they were not produced for DoD under the prime manufacturer's FAA-approved quality control system. Even if they were produced under such a system, they may not have been operated or maintained in a manner consistent with commercial aviation requirements. The FAA shares these industry concerns, and brought them effectively to the attention of senior DoD officials. As a result, a joint FAA-DoD team has been established to determine the appropriate policies and processes which should control the disposition of DoD surplus inventories in a manner which is consistent with commercial aviation safety. In addition to safety concerns, AIA members are troubled about this issue because of the potential economic impact on their commercial markets of disposition of large quantities of military surplus material. AIA supports the FAA-DoD team process now underway, and is hopeful that it will resolve this complex issue in a fair and reasonable manner.

The Merits Of Either Regulating Or Accrediting Parts Brokers

Distributors and brokers undoubtedly perform a legitimate and necessary function in remarketing surplus inventory. Many distributors and brokers have demonstrated great concern over the risk that they will unknowingly buy and resell unapproved parts, and have made significant investments to implement quality systems to minimize this risk. The trade associations represented here today, along with other organizations, have focused much attention on unapproved parts issues in their activities, and have contributed to these very positive developments. However, not all brokers and distributors are equally scrupulous. In the unapproved parts cases I have investigated over the past eighteen months, almost without exception, the unapproved parts concerned entered the market through distributors or brokers, not through direct sale from the manufacturer to an end user. Moreover, we have encountered frustrating situations in tracing SUPs to distributors or brokers who refuse to disclose the source from whom they obtained the parts in question.

Pratt & Whitney's experience in this respect is not unique, and for this reason AIA members have generally favored FAA regulation of distributors and brokers. However, the FAA has declined to engage in direct regulation, in part because of resource constraints. The key activities which require scrutiny are incoming inspection and quality assurance standards and procedures. Rather than direct regulation, the FAA has suggested a system whereby distributors and brokers could voluntarily seek third-party accreditation to ISO 9000, ATA Specification 106 or a similar quality system standard, and register that accreditation in a manner which would cause them to become a preferred source of parts for end users -- hopefully to the exclusion of non-accredited sources.

At Pratt & Whitney, we have noted that as our customers have become increasingly aware of unapproved parts issues, they have focused increasing attention on quality surveillance and approval of suppliers with whom they do business. These developments suggest that a system of third-party accreditation and registration such as the FAA has suggested, though voluntary, may reduce the flow of unapproved parts through distributors and brokers to commercial air carriers. AIA members are not unmindful of the FAA's strained resources, and AIA considers the FAA's concept to be a viable demonstrator project which may prove acceptable as an alternative to direct regulation. We believe that it would be an improvement over the status quo. In this regard, I should note that a draft Advisory Circular 20-DU to establish the FAA's proposed program has been under consideration for more than a year and a-half, and it is time to move forward.

Recommendations For Improving The Management And Oversight Of SUPs

On the basis of the foregoing discussion, AIA would make the following recommendations to improve the management and oversight of SUPs, and otherwise to ensure that all modification or replacement parts installed on our products conform to an FAA-approved design:

-- First, clarify the applicability of FAA production approval requirements, and tailor them appropriately to ensure aviation safety.

-- Second, develop information systems which will enable an installing entity to determine which part numbers require FAA manufacturing approval, and which parts actually have it. This should include defining standard documentation that should be required to accompany the transfer of a part, and clarifying the circumstances under which documentation should be available to support installation of the part.

-- Third, after the first and second recommendations have been accomplished, prohibit installation of parts requiring FAA manufacturing approval which do not actually have it.

-- Meanwhile, promptly issue a revision to AC 21-303.1A to strengthen the PMA process, based upon industry draft "8110.XXX."

-- Meanwhile, make a final decision regarding regulation or accreditation of distributors and brokers. If appropriate, promptly complete and issue AC 20-DU.

-- If AC 20-DU is issued, establish a review process to determine the effectiveness of voluntary registration and accreditation of distributors and brokers in reducing the entry of unapproved parts into the market.

In conclusion, Mr. Chairman, let me simply stress again that the objective overall safety record of commercial aviation must not be allowed to obscure the need to improve FAA and industry oversight of parts design, manufacturing and repair. AIA members are striving to promote needed improvements, and to promote an ethic of continuous improvement in all matters that bear upon aviation safety. We hope that the suggestions I have outlined today will assist the FAA and the industry in further assuring the integrity of aviation products throughout their service life.

Mr. Chairman, this concludes my written statement. Once again, thank you for inviting AIA to present these concerns and recommendations on this important subject. I would be pleased to respond to any questions you or the members of the Subcommittee may have.

Statement of the Air Transport Association
Before the Senate Committee on Governmental Affairs
Subcommittee on Oversight of Government Management and
the District of Columbia to Examine Whether Unapproved
Aviation Parts Pose a Public Safety Risk .
May 24, 1995

Mr. Chairman, my name is Michael F. Rioux. I am Vice President, Engineering, Maintenance and Materiel of the Air Transport Association of America (ATA). ATA represents 20 U.S. air carriers that provide about 97% of the revenue passenger miles and cargo ton miles flown by the scheduled air transport industry. I appreciate this opportunity to appear before the Committee to present the views of these carriers on unapproved parts.

The airline industry has no higher priority than operational safety. Constant vigilance over all aspects of our operations is a critical component of the industry's ongoing effort to ensure that our commercial air transportation system is the safest in the world. That vigilance extends to all aspects of aircraft maintenance, including guarding against suspected unapproved parts.

ATA's members have devoted a great deal of attention to deterring the introduction of unapproved parts into their materiel inventories. They have long-standing quality assurance programs that scrutinize parts that are delivered to an airline. Moreover, our members have invested enormous amounts of time and effort into a series of projects intended to enhance unapproved parts deterrence programs. Some of these have been airline industry initiatives, many of them have been overseen by the Federal Aviation Administration.

These projects have either been completed or are well on their way toward completion. One major potential improvement has not yet been initiated: FAA regulation of parts suppliers. We have petitioned the FAA for such a regulation on June 10, 1994, but the agency has yet to act upon our petition.

One problem that has emerged in discussing the issue of unapproved parts is the confusion about what the term means. An unapproved part is a part, component or material that has not been manufactured in accordance with the approval procedures in Federal Aviation Regulation (FAR) Section 21.305, or repaired in accordance with FAR Part 43, or that may not conform to established industry or U.S. specifications (standard parts). Such unapproved parts cannot legally be installed on a type certificated product unless a determination of airworthiness has otherwise been made.

Do Suspected Unapproved Parts Compromise Public Safety ?

Over the past 10 years, the terms bogus, counterfeit, undocumented, fraudulent and suspected unapproved parts (SUPs) have been used interchangeably with the unapproved part definition.

There are hundreds of thousands of parts that support the many types of commercial airplanes in operation today with inventories estimated to be in the 12 to 15 billion dollar range . These parts range from ashtrays to sophisticated navigation computers . Parts can be categorized as either:

Commercial Parts
Standard Parts
Owner Produced Parts
Technical Standard Order Parts
Rotable Parts (Repairable)

Within each category a part can be classified as either an approved part or a suspected unapproved part. Suspected unapproved parts can in turn be subdivided into:

1. Undocumented
2. Stolen or Improperly Modified
3. Counterfeit or Fraudulent

Undocumented parts can be characterized as parts shipped directly to users by a manufacturer or supplier or distributor who does not hold or operate under the authority of an FAA production approval. In some cases subcontractors have over produced a production approval holder (PAH) part and subsequently offer that surplus part to a distributor, repair station or airline as a replacement part. These parts, even though they may be built to manufacturer specifications and may be airworthy, bypass the certificated PAH's quality control system and become unapproved.

Stolen parts, when originally produced, met all airworthiness requirements. However, they usually are modified, records falsified and new data plates installed, all rendering the part unairworthy.

The most dangerous category - - bogus or counterfeit parts - - are produced intentionally to deceive the user. These parts may be deficient in heat treatment, strength, size and other factors critical to safety.

Its important to remember that commercial airline aircraft are designed and built with an incredible amount of redundancy and back-up systems that assure operation when a component fails. Aircraft are manufactured to be fail-safe and damage tolerant. Further, the airline inspection and quality systems of the U.S. commercial airline industry are designed to detect possible flaws or discrepancies well before there could be any question about the airworthiness of the aircraft.

Airlines are extremely cautious when selecting sources for spare parts and rely heavily on reputable suppliers as a vital link in the parts supply chain. Air carriers have solid quality control procedures in place and a proven track record of success as evidenced by no ATA member airline mishaps related to unapproved parts. In a system designed for safety, extreme efforts are made to quickly isolate and remove bad parts from service. Receiving and verifying inspections and examination by mechanics are all accomplished before a part is installed and are some of the key ingredients that have successfully stemmed any potential safety threat to the airline industry.

But at the same time we can't rest on our laurels and our outstanding safety record and expect these measures alone to eliminate the growing number of suspected unapproved parts from entering the supply system. That is why industry and FAA are working hard together to eliminate the threat of unapproved parts. Our members want to maintain this perfect safety record and believe more should be done to eliminate any potential threat.

What ATA and airline industry have done to address unapproved parts

The FAA has the responsibility and authority to regulate and authorize acceptable performance and design standards for aircraft registered and operated in the U.S. including design, production and maintenance in compliance with safety regulations and guidelines. The FAA has devised an intricate system of establishing airworthiness of not only aircraft but component aircraft parts as well. The FAA has approximately 22 FARs, 18 Orders/Handbooks, 32 Advisory Circulars and 5 FAA forms, all related to suspected unapproved parts.

Under the existing FARs, FAA exercises regulatory authority over airlines, manufacturers and repair stations as to the design, manufacture, modification, maintenance and installation of parts. But they do not exercise jurisdiction of the total supply line - they ignore distributors. For that reason, the airline industry and ATA has taken additional measures to eliminate the threat of Unapproved Parts entering the commercial airline supply system:

1. In 1967, an international organization of major aerospace/marine contractors established the Coordinating Agency for Supplier Evaluation (CASE). CASE is a non-profit organization designed to audit and evaluate airline maintenance, including the adequacy of surveillance inspection programs. In 1992, CASE adopted a standard for auditing and evaluating parts distributors. To date, there are 40 air carrier and 189 aerospace/marine corporate members or associate members of CASE, all working together in audit teams to ensure compliance with FAA requirements and approve commercial standards regarding component repair, surplus parts, distributors, fuel and oxygen vendors. CASE organizations that are successfully evaluated are added to the CASE register for access by the members. CASE has been successful in increasing vendor quality awareness, resolving quality control issues, supporting airline quality control programs, and providing a valuable resource of qualified suppliers and dealers. :

2. A five-point initiative was established and approved by the ATA Board of directors in 1992 to address the issue of unapproved parts. The initiative included FAA regulation of suppliers; expanded use of designated airworthiness representatives (DARs) to certify surplus materials; assist FAA with Advisory Circulars and other documents to facilitate reporting of suspected unapproved parts; development of an ATA specification; and development of a supplier audit program. Since the five-point initiative was implemented, ATA has:

   a. Published ATA Specification 106, "Sources and Approved Parts Qualification Guideline," which outlines and identifies recommended procedures for airlines and/or suppliers, buyers and quality assurance/control inspectors to follow to assure that only approved parts are provided to aircraft operators.

   b. In 1992, established a subcommittee to address the suspected unapproved parts issue. Working jointly with the FAA and other industry groups, numerous Unapproved Parts projects dealing with enforcement, certification and documentation were initiated. A list of joint industry/FAA initiatives is provided in Appendix A.

   c. Expanded the use of Designated Airworthiness Representatives (DAR) to verify certification of surplus materials.

   d. Petitioned the FAA to require a quality /inspection system for all aircraft parts distributors, suppliers, brokers and surplus dealers (Appendix B).

   In addition, most ATA members have adopted the CASE program as a standard supplier audit program.

3. Cooperated with and assisted government agencies in the investigation of suspected unapproved parts.

4. Re-emphasized through education and awareness programs the pertinent requirements for airlines to comply with FAA directives. Airlines have, in turn, directed their materiel departments to only

purchase parts through a Parts Manufacturer Approval (PMA) or distributor who can provide proper documentation. Mechanics and inspectors are trained to be sensitive to parts and packages that don't look or feel right, even down to the color of the ink on a manufacturer's logo.

Inspection and Enforcement

There are several ways in which a replacement or modification part may be approved:

1. Type and production certificates were issued by FAA during the original manufacture of a product.
2. Aircraft owner/operator produced parts for use on their own aircraft.
3. Parts are approved which conform to FAA Technical Standard Orders (TSO).
4. Standard parts that conform to established industry or U.S. specifications.
5. Any part not included in the above categories must be approved under FAA Parts Manufacturing Approval procedures.

While these approval procedures have been effective, enforcement of the existing FAA regulations have not been effective in preventing the production of unapproved parts. Enforcement action is not pursued in many cases because the rules that are in effect are not strong enough to obtain a judgement or FAA resources are insufficient to investigate allegations or the violators are simply not aware of the regulatory requirements.

With more than 6,000 manufacturers, suppliers and parts dealers doing business with the commercial airline industry, the FAA has only about 70 field inspectors who are responsible for oversight of those manufacturers and repair organizations dealing with production, repair, and certification of parts.

To address this problem FAR 21.303 should be revised to deal with replacement and modification parts. Our specific regulatory recommendation is outlined in Appendix C.

On February 17, 1995, the FAA issued a notice of policy entitled "Replacement and Modification Parts Enhanced Enforcement". This policy sets forth how the FAA plans to enhance enforcement against persons who improperly produce modification and replacement parts for sale for installation on type certificated products. While the policy is not a complete plan, it is a very essential step in the right direction. The policy then warns that the installer is still responsible for ensuring that the product will meet appropriate airworthiness standards.

This policy is the logical starting point for developing solutions to the unapproved parts issue. But it is possible that manufacturers will not be inclined to go through the effort of obtaining a government approval if the government is not enforcing the rule!

The FAA has also made great strides with regard to the sale and introduction of surplus military parts to the commercial airline industry. With the DOD, FAA has addressed this issue effectively.

Missing Elements

There are several items that need action now to help curtail the Unapproved Parts problem.

1. Publish Advisory Materials

The FAA must publish pending advisory materials that are important to the process. Two key documents needed are an advisory circular that will provide definitions and guidance for owner-produced parts, and an advisory circular that will provide specific guidelines for parts receiving inspections.

2. Enforce Existing Rules

With one key exception, noted in the following paragraph, the FAA already has the basic rules in place to activate an Approved Parts program. The problem now is basically one of proper enforcement, and phase-in with the initiatives already outlined.

3. Regulate Distributors

FAA should enact a new rule to require that distributors of parts be accountable to the regulatory process. ATA has petitioned the FAA to require parts distributors to be regulated, and to have a quality assurance system, just like all the other elements of the industry. Transport Canada already has such a system in place and the concept of distributor regulation is not new, having been previously recommended and endorsed by the Flight Safety Foundation, the Aerospace Industries Association, the Regional Airline Association, and in a 1984 COMSIS Corp. report, contracted under authority of the FAA.

Our reason for advocating this rule is simple. Under the existing regulations, the FAA has regulatory authority over airlines, manufacturers and repair stations but lacks specific jurisdiction over distributors. Distributors can buy and sell parts without any FAA approved quality control/inspection system. By regulating this segment of the industry, opportunities to introduce an unapproved part into the parts distribution system will diminish and unethical organizations will be deterred from entering the aircraft parts business. Distributors must be subject to rapid administrative action in the event they are caught violating the regulations. Administrative penalties, including de-certification, can typically be imposed far more quickly than can civil or criminal court penalties. The aviation safety system needs the fastest possible response when a parts quality problem is discovered.

Airlines rely heavily on reputable distributors as a vital link in the parts supply chain. In fact, the operators themselves are the largest distributors of aircraft parts. Mandating a quality control system and bringing distributors under the jurisdiction of the FAA will help apportion responsibilities and strengthen the system's weakest link. The air carriers are willing to work cooperatively with FAA in drafting regulations. Enforcement of such a regulation obviously is an important issue, especially in view of the FAA's constrained budget. One solution would be the use of third party accreditation agencies to supplement the limited FAA resources.

Other Recommendations

Three additional actions should also be adopted by the FAA:

1. FAA should implement an accessible on-line data base to allow operators and repair stations to validate those manufacturers and suppliers that have been approved/certificated by the FAA to perform specified manufacturing and repair functions.

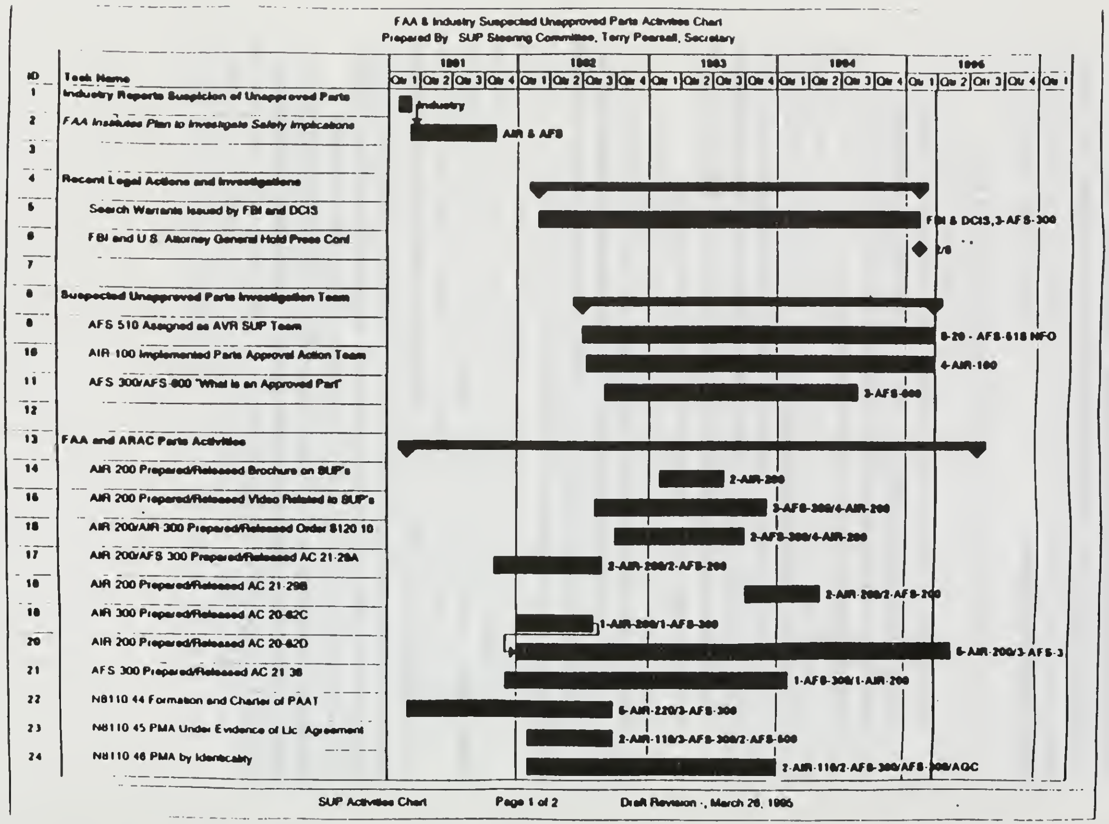
2. Original equipment manufacturers should publish Illustrated Parts Catalogs that include only suppliers' parts that have FAA certification/approval. United Technologies (Pratt&Whitney) has taken this initiative and should be commended for their pro-active approach. We encourage every manufacturer to take similar action.

3. The FAA should harmonize with the European Joint Airworthiness Authorities on the mandatory use of a single airworthiness tag to be required on all aviation parts. This will facilitate the movement of parts throughout the global aviation system.

Conclusion

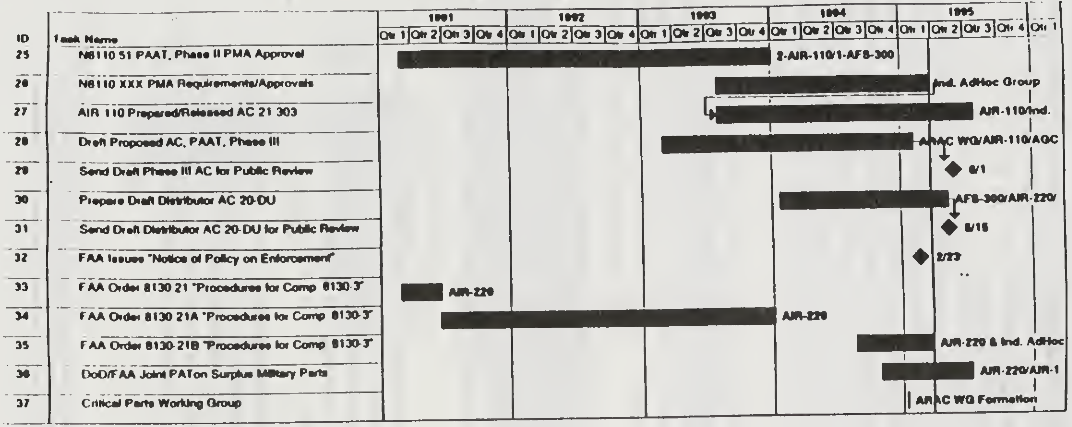
The aviation industry is working diligently to eliminate the threat of unapproved parts and has undertaken many projects and initiatives, many jointly with the FAA, to accomplish this goal. However, we believe that the unblemished record of commercial air carriers will require additional safeguards for the future. The cornerstone of new safeguards are new rules which will close the regulatory gap and bring all aircraft parts distributors under the Federal Aviation Regulations.

FAA & Industry Suspected Unapproved Parts Activities Chart
Prepared By SUP Steering Committee, Terry Pearsall, Secretary



SUP Activities Chart Page 1 of 2 Draft Revision -, March 28, 1995

FAA & Industry Suspected Unapproved Parts Activities Chart
Prepared By SUP Steering Committee, Terry Pearsall, Secretary



SUP Activities Chart Page 2 of 2 Draft Revision -, March 28, 1995

Air Transport Association

June 10, 1994

Federal Aviation Administration
Attn: Rules Docket (AGC-10)
Office of the Chief Counsel
800 Independence Avenue
Washington D.C. 20591

Subject: Petition for the regulation of aircraft parts distributors, suppliers, sellers, brokers and surplus dealers

Ladies/Gentlemen:

In accordance with FAR Part 11.25, the Air Transport Association, on behalf of its member airlines[1], petitions the FAA to establish Federal Aviation Regulations requiring quality/inspection systems for all aircraft parts distributors, suppliers, sellers, brokers and surplus dealers (hereafter referred to as "suppliers"). Regulations should be established which mandate a quality system that ensures all parts sold for installation on a type certificated aircraft are properly documented and provide adequate traceability to the approved manufacturing source or regulated agency.

Airlines are extremely cautious when sourcing parts and rely heavily on reputable suppliers as a vital link in the parts supply chain. Suppliers purchase low-cost bulk orders from manufacturers who in many cases are unable or unwilling to produce or stock smaller quantities to meet the demand of individual airlines. Used extensively, suppliers offer an alternative source and sometimes the sole source for aircraft parts.

Under the existing Federal Aviation Regulations, the FAA has regulatory authority over airlines, manufacturers and repair stations but lacks specific jurisdiction over suppliers. Suppliers can buy and sell parts without any FAA approved quality control/inspection system. Although the airlines request only approved parts via the purchase order, the burden for ensuring compliance with federal regulations is at the receiving end of the parts transaction cycle rather than at the origin. Air carriers have solid quality control procedures in place and a proven track record of success as evidenced by no aircraft mishaps related to unapproved parts. However, it is imperative that every step possible be taken to ensure no opportunity is available to introduce an unapproved part into the parts distribution/supply system.

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[1] ATA's members are Alaska Airlines, Aloha Airlines, American Airlines, American Trans Air, Continental Airlines, Delta Air Lines, DHL Airways, Evergreen International Airlines, Federal Express, Hawaiian Airlines, Northwest Airlines, Reeve Aleutian Airways, Southwest Airlines, Trans World Airlines United Airlines, United Parcel Service and USAir Our associate members are Air Canada, Canadian Airlines International and KLM Royal Dutch Airlines

To further that objective, there must be regulations which will help deter and remove unethical organizations from the aircraft parts business. Without the appropriate levels of deterrence and civil penalties, the system will become more dependent on the operator's quality/inspection system to detect these suppliers and their parts. Suppliers should have a regulatory responsibility to help assure the authenticity of parts that they provide to operators. Regulations of suppliers will also provide the FAA with the authority to impose sanctions promptly upon suppliers who engage in misconduct. Since the FAA would have the power to withdraw a supplier's authority to operate, we believe that suppliers would have a strong incentive to abide by such regulations.

Mandating a quality/inspection system and bringing suppliers under the jurisdiction of the FAA will help apportion responsibilities and strengthen the system's weakest link. Suppliers should be required to adopt a quality control system so that all parts are properly documented and traceable to an approved source. To help ensure compliance the new regulations could make a supplier's facilities available for FAA inspection at any time so that unscrupulous suppliers could be subject to appropriate enforcement action.

Industry is willing to work cooperatively with FAA in drafting and enforcing the regulations. It is recommended that the regulation be based on the supplier responsibilities and requirements specified in ATA SPEC 106, "Sources & Approved Parts Qualification Guidelines" (see enclosed). SPEC 106 describes the suggested guidelines for a supplier's quality program and includes the following areas of responsibility:

- General Quality Control System
- Documentation and Certification
- Inspection
- Measuring and Test Equipment
- Technical Data Control
- Records
- Shelf Life Program
- Training
- Procurement
- Material Control
- Facilities
- Quality Control
- Shipping
- Scrapped Parts

In addition, the following is recommended:

1. The regulation should cover FAR Part 121, 135 and 145 activities for all commercial services (airline sales of parts should be subject to the regulations).
2. The scope of the regulations should only include suppliers of parts for installation on commercial aircraft (for compensation only).
3. Delegate authority to second and third party accreditors such as CASE, to audit/evaluate suppliers which serves as a basis for subsequent FAA certification (minimizes FAA investment and resources).

Supplier regulation will not only enhance safety but will also improve the public's perception and confidence in the air travel system. Moreover, the airlines believe regulation of suppliers will impose a uniform standard upon all suppliers of aviation parts. For these reasons, the regulation of this segment of the parts chain is essential to an ongoing and safe air travel industry.

We greatly appreciate your expeditious response to our request.

James E. Landry
President

Amend FAR 21.303 (a) to read as follows:

21.303 Replacement and modification parts.

(a) A person may not produce, manufacture, sell, offer or hold for sale, ship or deliver for shipment, or receive or transfer for sale any modification or replacement part for installation on a type certificated product unless-

  (1) The modification or replacement part is produced directly under the authority of an FAA-issued Parts manufacturing Approval or:

  (2) The modification or replacement part is in any category listed in paragraph (c) of this section.

(b) Any modification or replacement part which is not manufactured or produced under this section is an unapproved part (or product), and is ineligible for installation on a type certificated product.

2. By redesignating 21.303 paragraphs (b) through (k) as paragraphs (c) through (1).

RAA Regional Airline Association
[illegible]

STATEMENT OF WALTER S. COLEMAN
OF THE

THE REGIONAL AIRLINE ASSOCIATION

BEFORE THE
COMMITTEE ON GOVERNMENTAL AFFAIRS
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT
MANAGEMENT AND THE DISTRICT OF COLUMBIA

RE: SUSPECTED UNAPPROVED PARTS IN AVIATION

MAY 24, 1995
DIRKSEN SENATE OFFICE BUILDING

Mr Chairman, I am Walter S Coleman, President of the Regional Airline Association The Regional Airline Association appears here today to provide the views of our members on whether unapproved aviation parts pose a risk to commercial aviation safety

We recognize that the specific subject of this hearing is suspected unapproved parts However, the fundamental subject is commercial aviation safety In aircraft engineering and maintenance, as in aviation training and flight operations, the interests of safety come before all other interests

There have been few known accidents worldwide, which have had as a cause, unapproved parts In the United States there are no known commercial airplane accidents which were attributed to the use of unapproved parts However, the identification of a potential safety issue in the absence of an aviation accident is exactly the path that we in commercial aviation want to pursue The absence of commercial aviation accidents in the United States resulting from the use of unapproved parts may be the result of the attention that this issue has received from FAA and the industry RAA expects no reduction in the awareness or concern our members have in guarding against the acquisition or use of unapproved parts

DEFINING APPROVED AND UNAPPROVED PARTS

The RAA offers the following definition of an approved part

Conforms to the type design and,
Is in a condition for safe operation and,
Is properly documented

Unapproved parts may be defined as follows

Produced by an unauthorized manufacturer,
Repaired or maintained by a non-FAA approved facility;
Not traceable to an approved source;
Conformity to type design cannot be assured

Unapproved parts are those which do not meet the definition of approved parts, however parts not meeting the definition may or may not pose a safety risk Commercial airlines have as an objective to only use approved parts

RAA ACTIONS TO IDENTIFY AND REDUCE SUSPECTED UNAPPROVED PARTS IN INVENTORY

Participation in industry/FAA activities including the Aviation Rulemaking Advisory Committee (ARAC)

Communications to members to increase awareness of the possibility of unapproved parts in the system, emphasizing:
- Receiving inspection process
- Using known and reputable sources for parts, "know your supplier"
- Complete documentation or appropriate inspection/testing

Emphasis on supplier audits

Participation in seminars on unapproved parts and other information exchanges

FAA'S INSPECTION PROGRAM

The applicable FAA regulations have remained essentially unchanged and subject to a variety of interpretations and enforcement actions FAA has had difficulty keeping up with applications for Parts Manufacturing Approval (PMA) particularly with original equipment manufacturers (OEM) located outside the United States

There has been some difficulty for air carriers obtaining parts from OEMs who have not received their PMA from the FAA FAA has recognized the need to deal with existing parts inventories which may not be fully documented

Intentionally fraudulent parts are difficult for the users and FAA inspectors to detect This element of suspected unapproved parts must be dealt with by an enforcing body outside of DOT/FAA such as the Department of Justice

RAA supports the establishment of a mechanism to regulate suppliers however the regulatory process must be constructed to be enforceable

RECOMMENDATIONS

1 FAA should act on the ARAC recommendations to improve the PMA process

2 FAA should identify a process to determine the acceptability of existing inventories which may not have full documentation

3. FAA should consider the establishment of a mechanism to regulate suppliers

4 The parts approval requirements should be "harmonized" between FAA and foreign aviation regulatory bodies This includes the use of Form 8130-3 which is equivalent to Form JAR-1

5 Information should continue to be distributed on the safety concerns associated with undocumented parts

6 Guidelines should be provided to suppliers and airline operators to aid in the identification of parts which are approved and those which are not approved

The Regional Airline Association recognizes that there is a legitimate concern with suspected unapproved parts despite the absence of commercial airline accidents attributed to the use of unapproved parts It is important that both the FAA and the airlines work together to create appropriate safeguards

QUESTIONS REGARDING THIS TESTIMONY SHOULD BE ADDRESSED TO

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Testimony of

Edward J. Glueckler
President
Airline Suppliers Association

before the

United States Senate Committee on
Government Affairs
Subcommittee on Oversight of
Government Management and the District
of Columbia

Hearing to Examine Whether Unapproved Aviation Parts Pose A Public Safety Risk

May 24,1995
Dirksen Senate Office Building
Room 342

Senator William S. Cohen
Chairman

Airline Suppliers Association

Testimony of
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May 24, 1995

Hearing to Examine Whether Unapproved Aviation Parts Pose A Public Safety Risk

Chairman Cohen and Members of the Subcommittee, I appreciate the opportunity to appear before you today.

My name is Edward Glueckler[1] and I am the President of the Airline Suppliers Association. The Airline Suppliers Association is the non-profit association which represent the entities involved with the sale and distribution of aircraft parts. Our members include companies both large and small[2]. They represent a large segment of the industry from airlines to manufacturers, distributors to repair stations, all of which are in the business of selling aircraft parts. Our mission is to promote safety, regulatory compliance and ethical business practices throughout the aviation industry.

The questions being embraced today by this subcommittee are very complex and require more than just a yes or no answer.

Recognizing that the issue is complex and that there is no one answer which will address everyone's concerns, there are six points which I place before the Subcommittee for serious consideration:

- The industry needs FAA support of the joint industry effort to develop a Distributor/Dealer Accreditation Program and not additional regulations to cover the sale of aircraft parts.
- The FAA should require all new manufactured approved aviation parts to have an FAA form 8130-3 tag to identify the part as being an approved part.
- The FAA should require all new manufactured non-conforming aviation parts to be mutilated by the FAA Production Approval Holder to prevent the sale of non-conforming parts.
- We must encourage the FAA to rapidly disseminate to the public their SUPs Reports by making the information available over the Internet.

- We must also encourage the DOT Office of Inspector General to more rapidly disseminate the results of their criminal investigations in such a manner that does not compromise their investigations.
- We need the FAA to perform a work-flow-analysis of the PMA application process to identify ways to improve the administrative process and provide accurate collection of PMA data in such a manner that would support an electronic data base listing all FAA PMA parts.

Mr. Chairman, I will expand upon these points as I address the five issues you request that my testimony covers.

ISSUE ONE:

The extent to which suspected unapproved parts (SUPs) compromise public safety...

- *Manufacturer must have PMA for replacement parts.*
- *Airlines not required to only use FAA approved parts.*
- *Not all FAA approved parts must be identified as such by the manufacturer.*
- *Criminal fraud?*
- *Civil violation?*

In order to properly answer this question we must understand the terms we are using and the problem we are dealing with.

First we must recognize that the Federal Aviation Regulations, except for a few exceptions, stipulates that no person may produce a modification or replacement part for sale for installation on an aircraft unless it is produced pursuant to a PMA or Parts Manufacturer Approval[3].

Second, the airlines are not required by the Federal Aviation Regulations to use only FAA approved parts. The FARs require an air carriers to use materials of such a quality that the condition of the aircraft will be at least equal to its original or properly altered condition[4]. There is no mention of a requirement to only use FAA approved parts.

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Types of Parts an Airline Can Purchase and Use
• Parts Manufactured by an FAA approved manufacturer for that part (PMA Holder, Production Approval Holder or Type Certificate Holder, Technical Standard Order Approval Holder).
• Standard Parts such as bolts and nuts conforming to established industry or U.S. specifications.
• Parts produced by an owner or operator for maintaining or altering their own aircraft, engine or propeller as provided under FAR § 21.303 (b) (2).
• Parts identified by the airline in their maintenance manual as provided under FAR § 43.23 (c).
• Any part that the air carrier determines will return the aircraft to be at least equal to its original or properly altered condition with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness.

Third, not all aircraft parts must be identified and marked by the manufacturer. Except for aircraft and engines, only critical components and for parts manufactured under a PMA, must the manufacturer mark the part[5]. Furthermore, there is no regulatory requirement for a manufacturer to provided a tag on the part to identify it as an FAA approved part. Once the aircraft part is sold by the manufacturer to an airline, how does an airline re-sell that excess part and prove that it is an FAA approved part? Many airworthy parts remain in question because there is no document to prove their origin.

The issue is further complicated because we must consider whether we are addressing criminal activities or civil violations of the Federal Aviation Regulations.

Under the heading of criminal activities, we focus on persons involved with fraud such as manufacturing counterfeit parts, or persons manufacturing parts for a production approval holder who sells their non-conforming parts as if they were conforming parts. These activities most clearly have the potential of having the greatest impact on public safety. ***The Airline Suppliers Association condemns such criminal activities and support legislation which would impose strict minimum fines and prison sentences on those involved with such criminal activities.***

Civil violations of the Federal Aviation Regulation, such as a person who manufacturers a part for sale for installation on a type certificated product who does not hold Parts Manufacturing Approval, is admittedly in violation of the Federal Aviation Regulations[6]. Admittedly, that part was also not subject to an FAA approved production and inspection system even though very often these subcontractors are the original equipment manufacturers of the parts! However, where that manufacturer is not making the representation that the part is an FAA approved part, they have not committed a criminal act. The classic example of this is the replacement light bulb used on an aircraft. These parts clearly have a minimal impact on public safety yet fall into the category of being not FAA approved parts.

I would like to make it perfectly clear, **the Airline Suppliers Association does not endorse the production of unapproved parts but rather encourages compliance with the Federal Aviation Regulations.**

Criminal Violations	Civil Violations
• Counterfeit parts • Non-conforming parts • Misrepresentations • Unauthorized repairs or modifications • Falsification of documentation	• Manufacturing parts for installation on a type certificated product without having FAA PMA (FAR § 21.303) • Falsification of applications, reports, certifications or records. (FAR § 21.2)[7]

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ISSUE TWO:
Actions that have been taken by the Airline Suppliers Association and our members to identify and reduce the number of SUPs in aviation inventories.

- *Education*
- *Quality Assurance Program*
- *Action*

There are two major efforts undertaken by the Airline Suppliers Association to reduce the number of suspected unapproved parts in aviation inventories.

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First is the education of the aircraft parts supplier:

- We hosted a two day conference with over ten hours of classroom training conducted by FAA personnel, airline representatives, legal counsel, DOT Office of Inspector General and other industry experts. They were held on both the east and west coast.
- Four, regional one-day workshops were conducted by the Airline Suppliers Association in 1994 which focused on FAR § 21.303 and the PMA process.
- FAA Training Videos, "FAA Regulatory Environment for Replacement/Modification Parts" and "Suspected Unapproved Parts", were provided by the FAA and viewed at our conferences. The videos were also reproduced and distributed at our expense and sent to each member to be used for training staff who were unable to attend our training workshops.
- The association also publishes a monthly newsletter, "The Update Report", to educate the industry on recent developments and explain the regulatory process.

Second, the Airline Suppliers Association also published with input from the FAA, our airline customers and the aircraft parts manufacturers a quality system standard for distributors and dealers of aircraft parts. The program is a quality program designed to provide the link between a manufacturer's quality system and an air carrier's quality system. It is a voluntary program which includes a requirement for conducting periodic self audits with a check list and documenting corrective action taken. Our Quality Assurance Committee which is responsible for maintaining this standard, continues to work with the airlines to ensure the program still meets their quality assurance requirements.

The Members of the Airline Suppliers Association have implemented many actions to directly address the Suspect Unapproved Parts Program. First and foremost has been the training of their staff on all levels on how to detect and report SUPs. Second has been the reporting of SUPs to the FAA. Third has been the cooperation with the FAA, DOT Office of Inspector General and the FBI to investigate those suspected of manufacturing unapproved parts.

Many members have also adopted and implemented the Airlines Suppliers Association Quality System Standard and have made themselves available for audits and inspections by the airlines.

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ISSUE THREE:
The adequacy of the FAA's inspection program, and investigative and enforcement actions related to SUPs, including the parts certification process.

- *Stricter enforcement of the Regulations*
- *Greater industry participation with the FAA SUPs program*
- *Re-engineer the PMA process*
- *PMA data base*

It is important to remember that the FAA does not approve parts. The FAA approves design data, the manufacturing process and the inspection process. The FAA is also responsible for enforcement of compliance with the Federal Aviation Regulations.

As is often the case when an organization's performance is reviewed the natural reaction is to be judgmental; "A job well done" or "Needs improvement". Since I have not been observer of their actions but have been a witness of the results of their performance I make the following observations:

- There needs to be a more rigorous enforcement of non-compliance with FAR § 21.303 as well as enforcement of FAR § 21.2. The industry needs to be shown a list of reported persons who are manufacturing replacements aviation parts who do not hold PMA. Sharing equally in this burden are the distributors who sell these parts, the airlines who buy these parts and the Production Approval Holders whose own surveillance program does not identify these manufacturers as supplying parts out the back door.
- The Part Certification process or PMA process is also a candidate for improvements. First is the need for uniform procedures for processing applications. There seems to be a significant variance from region to region. Second is to have a work-flow-analysis over the process performed by someone outside of the FAA and the aviation industry. An industrial engineer could perhaps identify opportunities for applying automation technologies to the process to reduce manual paper processing and make the process more efficient.
- The FAA needs to provide industry with a data base listing of PMAs. This would allow aircraft purchasing agents another tool to use to determine if the part is manufactured by a company who holds PMA for that part.

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ISSUE FOUR:

The merits of either regulating or accrediting parts brokers.

- *Too many to regulate*
- *Will not deter criminal activity*
- *Already subjected to existing regulations*
- *Joint industry task force has proposed an accreditation program to FAA.*

Anytime anyone considers regulation we must ask what activity the government seeks to control. Today, the sale of aircraft parts is not a regulated activity. Aircraft parts manufacturers while subjected to regulations for the manufacture of parts, are not regulated in the sale process. Airlines while regulated for the operation of their airline, are not regulated for the aircraft parts they sell.

FAA regulation of the sale of aircraft parts would have to include all airlines, aircraft parts manufacturers as well as all brokers, distributors and dealers who sell aircraft parts. A number too large to effectively regulate.

ACTIVITY	MANUFACTURE	DISTRIBUTION	AIRLINES
Manufacturing aircraft parts	Regulated. Must have PMA to manufacture replacement parts for sale.	Not applicable. Do not manufacture.	No PMA required for owner produced parts per FAR §21.303 (b)(2).
Selling Aircraft Parts.	Not regulated.	Not regulated.	Not Regulated.
Purchasing aircraft parts.	Can buy from any source.	Can buy from any source.	Can buy from any source.

There is little evidence to support that regulation will prevent criminal activity. The DOT Office of Inspector General has proved this with the results of their investigation. The OIG has done an excellent job along with the FBI of investigating criminal activity. Quite a few of these entities they have investigated have been engaged in regulated activities. The fact that they were regulated activities does not seem to have been a deterrent from them engaging in criminal activities.

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Brokers, distributors, and dealers of aircraft parts are already subject to existing Federal Aviation Regulations.

It is important to note that FAR § 1.1 defines a person as "an individual, firm, partnership, corporation, company, association, joint-stock association, or government entity. It includes a trustee, receiver, assignee, or similar representative of any of them." Equally important is to recognize that FAR § 21.303, and FAR § 21.2 apply to "persons" not exclusively to only manufacturers. Clearly they apply to non regulated entities as well!

An Accreditation Program, as the one which was jointly developed by all facets of industry, airlines, manufacturers, repair stations, distributors, and dealers of aircraft parts would provide meaningful oversight over the companies selling aircraft parts. The program was presented to the FAA last year and is awaiting FAA release to the industry.

An accreditation program is well supported in the industry. As proposed it would require an entity engaged in the business of selling aviation parts to adopt certain quality assurance standards. They would then be subjected to a third party independent audit of their facility. Once they passed the audit, they could sign a declaration with the FAA that they would only sell approved parts.

Accredited distributors and dealers would be subject to surveillance by third party auditors, the FAA and the airlines. Companies who were found to be in violation would lose their accreditation status.

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ISSUE FIVE:

Recommendations for improving the management and oversight of the Suspect Unapproved Parts Program:

The following briefly highlights some of the most important recommendations:

- Notification on the FAA Bulletin Board of SUP reports.

- Notification on the Fed World Bulletin Board from DOT OIG of criminal indictments.

- PMA data base with up-to-date information to provide a tool to identify PMA parts and reduce the market for unapproved parts.

- FAA implementation of an accreditation program for distributors and dealers of aircraft parts.

- Mandatory minimum monetary fines and jail terms for those caught selling counterfeit parts.

- Resolve the issue of what to do with the existing inventory of undocumented parts. This will reduce the number of suspected unapproved parts.

- Resolve the issue of either prohibiting both the sale and use of unapproved parts. As long as their is no regulation prohibiting the purchase and use of aviation parts manufactured outside of an FAA approved production and inspection system it will be difficult if not impossible for the FAA to enforce existing manufacturing regulations let alone try to control the sale of these parts.

* * * * *

Mr. Chairman, thank you for the opportunity to participate in this hearing. I believe my testimony accurately and honestly addresses the issues you present. If you or any of the members of the Subcommittee have any questions I will be more than happy to try to address them to the best of my ability.

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[1] Edward Glueckler has been the President of the Airline Suppliers Association since its formation in 1993. Previously he was on the staff of the Air Transport Association of America (ATA) from 1987-1992. Prior to that he was with American Airlines from 1976 through 1986. He is an attorney and a member of the ABA Forum on Air and Space Law.

[2]

AAA Interair, Inc., AAXICO, Acme Aircraft Parts, Acme Air Parts, Inc., Aero Brake & Spares, Inc., Aero Turbine International, Inc., Aircorp Spares, Inc., Aircraft Supply Corporation, Aircrafters, Inc., Airline Spares America, Inc., Airmotive, Inc., Airvionics, Inc., A. J. Levin Company, Inc., American General Supplies, Inc., Arger Enterprises, Associated Component Mfg., Inc., AV-MAT, Aviall, Inc., Aviation Sales, Aviation Systems Int'l., Inc., AVSCO Aviation Service Corp., AVTEC AG, Banner Aerospace, B. D. Bagnall Corp., Best Aviation Sales, Inc. Bet-Air, Inc., Bombardier Corporation, Capstone Airline Supply, Charlotte Aircraft, Chromalloy, Coast Material Sales, Connector Distribution Corp., Cornerstone Air, Inc., Danbee Aerospace, Inc., Douglas Aircraft Distribution, Eagle Industries International Inc., East Air Corporation, Evergreen Aircraft Sales & Leasing, Fields Aircraft Spares, Inc., Flight Director, Inc., Flightspares International, Global Airtech, GMDC, Inc., Great Lakes Turbines Corp., HARCO, Imex of Jacksonville/JAS Aviation, Instrument Support, Inc., International Aero, Inc., International Aircraft Associates, International Airline Support Group, Intertrade Limited, Jet Avion Corp., Jet International Corp., Jet Support Corp. Jorikahs Air Service GmbH., Landing Gear Support, Ltd., Lee Air Company, Madison Air Parts & Supply, Inc., The Memphis Group, Metro Parts, Inc., Miraj Corp., Mitchell Aircraft Spares, Norcross Air, Inc., Pacific Air Industries, Pacific Air Logistics, Inc., Patrick's Parts, Performance Management Systems, Pratt and Whitney, SAS Technitrade, Satair, Skylink, Inc., Space Age Aviation, Strider Aviation, Inc., Time Aviation Services, Inc., Tri Air Supply, Turbine Controls Europe N.V., United Airlines, Wencor West, Western Aero Services, Inc., Wings Electro Sales Co., Inc., Witty Air, Inc., World Aviation Supply. *Associate Members includes:* ABD/Wright Advertising, Aeron Equities Corp. Aviation Distributors, Inc. Barry Controls Aerospace, Bcomm, Bristol Industries, Consolidated Aircraft Supply Co., Inc., Electro Air Corp., Electro-Methods, Inc., Filler, Weller & Tello, P.C., Growth Industries, Inc., Hermetic Aircraft International Corp., Inventory Locator Service, IRC Turbine, Inc., Kiepura Aviation Corp., Pacific Aero Tech, Inc., STS Services, Inc., Vendor Surveillance Corporation, World Aviation Directory

[3] FAR §21.303 Replacement and modification parts.

(a) Except as provided in paragraph (b) of this section, no person may produce a modification or replacement part for sale for installation on a type certificated product unless it is produced pursuant to a Parts Manufacturer Approval issued under this subpart.

(b) This section does not apply to the following:

(1) Parts produced under a type or production certificate.

(2) Parts produced by an owner or operator for maintaining or altering his own product.

(3) Parts produced under an FAA Technical Standard Order.

(4) Standard parts (such as bolts and nuts) conforming to established industry or U.S. specifications.

(c) An application for a Parts Manufacturer Approval is made to the Manager of the Aircraft Certification Office for the geographic area in which the manufacturing facility is located and must include the following:

(1) The identity of the product on which the part is to be installed.

(2) The name and address of the manufacturing facilities at which these parts are to be manufactured.

(3) The design of the part, which consists of—

(i) Drawings and specifications necessary to show the configuration of the part; and

(ii) Information on dimensions, materials, and processes necessary to define the structural strength of the part.

(4) Test reports and computations necessary to show that the design of the part meets the airworthiness requirements of the Federal Aviation Regulations applicable to the product on which the part is to be installed, unless the applicant shows that the design of the part is identical to the design of a part that is covered under a type certificate. If the design of the part was obtained by a licensing agreement, evidence of that agreement must be furnished.

(d) An applicant is entitled to a Parts Manufacturer Approval for a replacement or modification part if—

(1) The Administrator finds, upon examination of the design and after completing all tests and inspections, that the design meets the airworthiness

requirements of the Federal Aviation Regulations applicable to the product on which the part is to be installed; and

(2) He submits a statement certifying that he has established the fabrication inspection system required by paragraph (h) of this section.

(e) Each applicant for a Parts Manufacturer Approval must allow the Administrator to make any inspection or test necessary to determine compliance with the applicable Federal Aviation Regulations. However, unless otherwise authorized by the Administrator—

(1) No part may be presented to the Administrator for an inspection or test unless compliance with paragraphs (f)(2) through (4) of this section has been shown for that part; and

(2) No change may be made to a part between the time that compliance with paragraphs (f)(2) through (4) of this section is shown for that part and the time that the part is presented to the Administrator for the inspection or test.

(f) Each applicant for a Parts Manufacturer Approval must make all inspections and tests necessary to determine—

(1) Compliance with the applicable airworthiness requirements;

(2) That materials conform to the specifications in the design;

(3) That the part conforms to the drawings in the design; and

(4) That the fabrication processes, construction, and assembly conform to those specified in the design.

(g) The Administrator does not issue a Parts Manufacturer Approval if the manufacturing facilities for the part are located outside of the United States, unless the Administrator finds that the location of the manufacturing facilities places no burden on the FAA in administering applicable airworthiness requirements.

(h) Each holder of a Parts Manufacturer Approval shall establish and maintain a fabrication inspection system that ensures that each completed part conforms to its design data and is safe for installation on applicable type certificated products. The system shall include the following:

(1) Incoming materials used in the finished part must be as specified in the design data.

(2) Incoming materials must be properly identified if their physical and chemical properties cannot otherwise be readily and accurately determined.

(3) Materials subject to damage and deterioration must be suitably stored and adequately protected.

(4) Processes affecting the quality and safety of the finished product must be accomplished in accordance with acceptable specifications.

(5) Parts in process must be inspected for conformity with the design data at points in production where accurate determination can be made. Statistical quality control procedures may be employed where it is shown that a satisfactory level of quality will be maintained for the particular part involved.

(6) Current design drawings must be readily available to manufacturing and inspection personnel, and used when necessary.

(7) Major changes to the basic design must be adequately controlled and approved before being incorporated in the finished part.

(8) Rejected materials and components must be segregated and identified in such a manner as to preclude their use in the finished part.

(9) Inspection records must be maintained, identified with the completed part, where practicable, and retained in the manufacturer's file for a period of at least 2 years after the part has been completed.

(i) A Parts Manufacturer Approval issued under this section is not transferable and is effective until surrendered or withdrawn or otherwise terminated by the Administrator.

(j) The holder of a Parts Manufacturer Approval shall notify the FAA in writing within 10 days from the date the manufacturing facility at which the parts are manufactured is relocated or expanded to include additional facilities at other locations.

(k) Each holder of a Parts Manufacturer Approval shall determine that each completed part conforms to the design data and is safe for installation on type certificated products.

[4] **FAR §43.13 Performance rules (general).**

(a) Each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance shall use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator, except as noted in §43.16. He shall use the tools, equipment, and test apparatus necessary to assure completion of the work in accordance with accepted industry practices. If special equipment or test apparatus is recommended by the manufacturer involved, he must use that equipment or apparatus or its equivalent acceptable to the Administrator.

(b) Each person maintaining or altering, or performing preventive maintenance, shall do that work in such a manner and use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness).

(c) *Special provisions for holders of air carrier operating certificates and operating certificates issued under the provisions of Part 121, 127, or 135 and Part 129 operators holding operations specifications.* Unless otherwise notified by the Administrator, the methods, techniques, and practices contained in the maintenance manual or the maintenance part of the manual of the holder of an air carrier operating certificate or an operating certificate under Part 121, 127, or 135 and Part 129 operators holding operations specifications (that is required by its operating specifications to provide a continuous airworthiness maintenance and inspection program) constitute acceptable means of compliance with this section.

[5] **§45.14 Identification of critical components.**

Each person who produces a part for which a replacement time, inspection interval, or related procedure is specified in the Airworthiness Limitations section of a manufacturer's maintenance manual or Instructions for Continued Airworthiness shall permanently and legibly mark that component with a part number (or equivalent) and a serial number (or equivalent).

§45.15 Replacement and modification parts.

(a) Except as orovided in paragraph (b) of this section, each person who produces a replacement or modification part under a Parts Manufacturer Approval issued under §21.303 of this chapter shall permanently and legibly mark the part with—

(1) The letters "FAA-PMA";

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(2) The name, trademark, or symbol of the holder of the Parts Manufacturer Approval;

(3) The part number; and

(4) The name and model designation of each type certificated product on which the part is eligible for installation.

(b) If the Administrator finds that a part is too small or that it is otherwise impractical to mark a part with any of the information required by paragraph (a) of this section, a tag attached to the part or its container must include the information that could not be marked on the part. If the marking required by paragraph (a)(4) of this section is so extensive that to mark it on a tag is impractical, the tag attached to the part or the container may refer to a specific readily available manual or catalog for part eligibility information.

[5] FAR §21.303 Replacement and modification parts. (See note 3.)

[7] **FAR § 21.2 Falsification of applications, reports, or records.**

(a) No person shall make or cause to be made-

(1) Any fraudulent or intentionally false statement on any application for a certificate or approval under this part;

(2) Any fraudulent or intentionally false entry in any record or report that is required to be kept, made, or used to show compliance with any requirement for the issuance or the exercise of the privileges of any certificate or approval issued under this part;

(3) Any reproduction for a fraudulent purpose of any certificate or approval issued under this part.

(4) Any alteration of any certificate or approval issued under this part.

(b) The commission by any person of an act prohibited under paragraph (a) of this section is a basis for suspending or revoking any certificate or approval issued under this part and held by that person.

STATEMENT
TO THE
SENATE SUBCOMMITTEE ON
OVERSIGHT OF GOVERNMENT MANAGEMENT
AND THE
DISTRICT OF COLUMBIA

HEARING ON
THE FEDERAL AVIATION ADMINISTRATION'S
EFFORTS IN ADDRESSING
THE PROBLEM OF UNAPPROVED PARTS
BY

JAMES M FRISBEE
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24 MAY 1995

Ladies and Gentlemen.

I have been asked to address the following issues.

1 The degree that suspected unapproved parts (SUP'S) compromise public safety

Answer:

The degree is unknown What is known is:

A. That given the lack of surveillance by the FAA over some 20-30 years, the aviation industry is vulnerable to the possibility of installing an unapproved part on an aircraft The part maybe unapproved for a variety of reasons such as
   1. It was not produced under an FAA certificated system of manufacture
   2. It was not manufactured to specification
   3. It was erroneously judged to be a standard or commercial part and was therefore erroneously exempted from certification
   4 It was introduced into the industry without the manufacturer holding certification by bypass of the regulations (e.g sold through a distributor)

B. That the aviation community as a whole was not aware until July of 1990 (The first unapproved part task force meeting organized by ATA) that problems with unapproved parts were as widespread and pervasive as was the case

C That much of the aviation community is still not totally aware of the issues that surround the problem of unapproved parts and lacking that knowledge there is continued confusion which makes the problem worse Many people are also confused about what actions should be taken to solve the problem

D That since 1990 when the problem was identified some representatives of aviation letter groups (including the FAA) have spoken, acted and worked in manners not conducive to solving the problem but rather to protect their constituents

E. That since 1990 many of the parties who are FAA certificate holders, who are in a position to exert considerable pressure on others to solve problems, have worked very hard to apply pressure on the FAA, their customers and suppliers so that they could continue their business as they had for many past years

F That some of the positions the FAA has taken relative to the problem were and are protective in nature Rather than addressing the problem with action that would solve it, the FAA has been a part of the problem

G. That reliance on FAA statistics that indicate that of all the aircraft accidents reported only a very few indicate the cause to have been an unapproved part is shortsighted If the flight crew is dead and cannot relate what really happened in their loss of control, it is unlikely that an investigation could identify the cause as a failure of equipment when the aircraft is in bits and pieces and scattered over an acre or two of ground

H. That even at airlines with sophisticated reliability programs for identifying cause of equipment failure (not involving accident) those systems do not in all cases identify premature failures. The introduction of a stock of unapproved parts onto aircraft then could go undetected and early failures merely accepted as standard operating procedure. Where no reliability program exists the capability of identifying an unapproved part as the cause for failure becomes almost impossible

I. That reliance on statistics relative to the reporting of SUP'S (to the FAA'S reporting system) is not dependable since many aircarriers, who are the greatest users of aircraft parts, do not report the finding of unapproved parts to the FAA In fact it is common that management at aircarriers give direction that under no circumstances is that to be done.

J. That given the lack of forthright approach by the FAA to recognize the reality of the problems identified from July 1990 to the present by industry members, the DOT-IG'S office and others, then those who would perpetrate the continuance of introduction of unapproved parts into the industry has been enhanced

2. The actions that you have taken and/or been a part of to identify and reduce the number of SUP'S in aviation inventories.

Answer:

A I began to investigate in detail parts that did not meet specification or were misrepresented in the industry beginning in 1987 when I began management of Quality Assurance at Northwest Airlines

B In July 1990, after almost a year of encouragement, a QA representative from AA and another from FX and myself from NW got ATA (Air transport Association) to raise the first unapproved parts task force.

C. As a part of the task force, I chaired a working group composed of a cross section of industry people (including FAA representatives). Our mission was to investigate the extent of the problem, make detailed proposal for change and to recommend the most appropriate actions the industry should take By Jan. 1992, we proposed or submitted the following

(1) A standard material certification with detailed instructions for use. (Published in ATA SPEC 106 and the CASE Policy).

(2) Wrote an FAA advisory circular, 21-38 *Disposition of Unsalvageable Aircraft Parts and Materials* (Published by FAA)

(3) Rewrote FAA advisory circular 20-62C, *The Eligibility, Quality and Identification of Approved Aeronautical Replacement Parts* (FAA has not published)

(4) Recommended the FAA produce a training program for industry. (After several failures the FAA produced a very good training session but it has been discontinued)

(5) Recommended the use of some sort of identifier or label for installation on parts produced by an approved manufacturer or certificate holder.

(6) Recommended that the FAA advise the industry that it was going to enforce the current FAR'S relative to the manufacture of parts In particular Part 21 Subpart K and L. (Enforcement notice of Subpart K issued to the federal register in Feb 1995)

(7) Assisted the FAA in the writing of advisory circular 21-29A *Detecting and Reporting of SUP'S.* (Published 1991)

(8) Assisted the FAA in the writing of an Advisory circular on *The Identification of SUP'S* (Published 1991)

(9) Recommended the FAA operate their aircraft and air operations under the same FAR'S that the rest of the U S aviation industry operated under This was to enhance their understanding of the industry and improve the CFR 14 by which we would then all work to as a standard (Initiated by the FAA in 1994?)

(10) Wrote a definition for standard parts (never published)

(11) Set down the criteria for a definition for commercial parts. (never published)

D. I also participated in the writing of ATA Spec 106 *Sources and Approved Parts Qualification Guideline* and was the prime mover in getting *The Coordinating Agency for Supplier Evaluation* (Case) to make the *Material Certification* generated by the task force working group I chaired as a part of their policy manual

E. I have made presentations to aviation manufacturers'repair stations, surplus suppliers, distributors, air carriers and industry groups during the course of my consulting on quality systems This training involved the proper purchase, handling and selling of aircraft parts and materials.

F. I have provided council to and appeared on television special involving unapproved parts for US, British, and German broadcast systems

G Please note attachments *1 and *2 which I wrote in past years which also may be of use in identifying problems the industry faces with unapproved parts.

3. The adequacy of the FAA inspection program and investigative and enforcement actions related to SUP'S, including the parts certification process

4.

A. I am quite familiar with the FAA'S inspection program relative to aircarriers considering not only SUP'S but all other aspects also. I have worked very closely with FAA Field Inspectors, their supervisors and office chiefs I find the aircarrier part of the FAA to be above average I personally coordinated a number of SUP'S with our local office at MSP and found they had a good grasp on the the problems faced. That may not, however, be the case in other offices. I, however, find a sense of frustration on the part of field inspectors assigned to aircarriers and those in general aviation because they are at the end of the line relative to parts usage. They cannot do their job well if the regulations are not followed at the top end (i e. manufacturing and certification). They also experience the frustration of having to deal with either a regional office or Washington FAA who have not wished to enforce regulations, let alone understand/admit that any kind of problem exists

B. I sense a general dissatisfaction in the FAA at the owner/operator end with the FAA at the manufacturing and certification end Equipment problems (SUP'S) are part of that) that manifest themselves during aircraft operation (often resulting in A D 's) often relate to improper/flawed design Field inspectors and maintenance personnel often account these situations to negligent oversight during design or manufacture Their feelings I believe are not without warrant Further, upon reporting or evidence of flawed design the FAA Manufacturing or Certification Branches seem to opt in either one of two directions immediate correction with little consideration for cost and down time or complete disregard for maintenance/FAA field people who get characterized as back yard designers I have known field inspectors to have great consternation with manufacturing and certification inspectors and their management to the extent that they give up trying Communication between the two groups does seem to be a problem It certainly is evident regarding unapproved parts If certification and manufacturing inspectors at manufacturers or production certificate holders had done their job, many of the problems we have today with unapproved/uncertificated parts would not exist

C. The FAA'S approach to the DOT-IG's findings regarding SUP'S et. al has been somewhat amusing to many of us in the industry If you work in this industry and observe not only the letter of regulation but also its spirit you welcome inspection/audit/surveillance Many of us have and continue to work to improve the aviation industry and that can only be done by surveillance against some standard. We find the FAA's approach to the DOT-IG's surveillance and their seeming indignation and refusal to admit wrong is ironic. All of us who have read the DOT-IG's reports find the audits to be proper, incisive well documented and on the mark with regard to findings. Their work was in the category of a classic quality assurance approach to identify systemic problems and we applaud them for their efforts. It must be said that the quality assurance people at this nation's airlines found that the DOT-IG was our only ally in our battle over unapproved parts We got no support from any other segment of the industry and the FAA had to be dragged, kicking to the point they would admit a problem with non-compliance to regulations existed

D. The parts certification process is basically not at fault if the regulations as written are complied with.

4. Any recommendations for improving management and oversight of SUP's

Answer

A. Enforce the Code of Federal Regulations 14 to the letter as written

B. Everyone in the aviation industry that is involved with parts and materials , including the FAA, should read the FAA's notice to the Federal Register regarding policy enforcement of CFR 14 PART 21. I don't believe the FAA realizes what they said they are going to enforce If they do, there are a lot of other people in this industry who don't understand what they said

C. A definition for standard parts and for commercial parts must be devised and adopted and both definitions must be very carefully crafted and without undo influence from industry and commercial interests

D. Reinstitute the FAA's training program on unapproved parts

E. Get off the DOT-IG's back They did a good job relative to their investigation of the FAA and their work on SUP's They deserve an award

F. Make it clear to the FAA that they must stop engaging in rule making without due process Advisory circulars, FAA Action Notices, and FAA Orders are not regulatory Neither should they go beyond regulation by some FAA legal interpretation. If regulation is necessary to be written, rewritten or whatever, do so according to the rule-making process Do not attempt to regulate the aviation industry by advice, misadvice, or coercion

Attachment #1

To

From
J. M. Frisbee

ORIGINAL

Location

Subject
Bogus and Unapproved Parts

Date
August 17, 1992

Reference:

The subject/problem of bogus and unapproved parts in the Aviation Industry is real, perverse and it cannot be solved by any one industry segment. We in Q.A. Audit have knowledge, documented evidence and audits which prove the following:

1. Manufacturers [redacted] are directing air carrie to buy parts from un-certificated sources.
2. Manufacturers [redacted] have directed air carriers tc buy parts manufactured in Mexico (no bilateral agreement)..
3. Manufacturers [redacted] skirt the FAR's by not selling direct to operators but do so through distributors.
4. Manufacturers [redacted] sell parts that do not meet design dat
5. Manufacturers [redacted] who sell parts to surplus supplie and airlines that have been rejected by assembly manufacturer
6. Well known and experienced manufacturers [redacted] who manufacture and sell parts for which they hold no FAA issued certification (PMA).
7. Repair stations [redacted] that overhaul assemblies using par that are unapproved or improperly repaired.
8. Distributors [redacted] who sell for manufacturers, and they have no idea of what they are selling or for what.
9. Standard part (fastener) manufacturers [redacted] who have directed personnel to falsify test data in order to mov inventories.
10. Standard part (fastener) manufacturers [redacted] who make substandard parts that are used on aircraft.
11. Distributors for standard parts (fasteners) who commingle pa from bonafide manufacturers with ones from overseas that are known to be substandard.

12. U.S. distributors of fasteners who have knowingly sold substandard lots to U.S. manufacturers. It is estimated by National Fastener Institute (report) that over 50 percent of the fasteners used in the U.S. today will not meet specification.

13. Surplus suppliers [redacted] who lie about the conditi of parts and forge signatures of certificated persons on material certifications.

14. Surplus suppliers who sell parts, representing them as new w they will not meet manufacturers specifications.

15. Surplus suppliers [redacted] who have conspired/obtain or stolen Return to Service tags from airlines and repair stations and filled them in with erroneous information.

16. Surplus suppliers who [redacted] have conspired with repair stations to sell parts that have not b properly overhauled.

17. Surplus suppliers [redacted] who have enti airline personnel to steal parts from air carriers or anyone else for ready cash.

18. Organized theft rings that steal parts from any unattended aircraft [redacted] The parts are then sent to suppliers other countries. When threatened with exposure, they murder people.

19. Airlines that sell parts and misrepresent their condition [redacted]. This may sometimes be on purpose or in some cas because surplus sales people don't know what they are doing.

20. FAA Representatives who have issued both verbal and written opinion to people over the years and have severely misled th [redacted].

The list could go further but what it boils down to is there is enough black paint to touch all of us and we at [redacted] are very vulnerable to getting bogus or unapproved parts on our aircraft. fact, they are on our aircraft now. The Aviation Industry has sp 30 years getting itself into this dilemma. We will not get ourselves out of it quickly The subject cries out to be address

Attachment #2

TO: Unapproved Parts Task Force

SUBJECT: Parts Problems

REFERENCE: Attached

Gentlemen:

I have worked up a listing of troubles we have with parts which seem to confound our industry. We have in our past meetings talked about such things in some cases to great length. We agreed that before we could begin to address what we should do we needed to list our problems. Perhaps, the attached can be at least the beginning of our list.

It may seem a little confusing due to duplication and you may be able to think of a better way to lay it out. I did, however, have illustration in mind when I conceived it. Pages 1 through 8 roughly follow a part from manufacture to the end user; i.e., the airline. Problems which originate at a manufacturer or somewhere within the hierarchy cascade through the system and manifest themselves at various other points in the system. They eventually, however, come to roost at the operator who wants to use the part. That is what I tried to illustrate. Some persons make problems, other persons are impacted by the problems and pass them on while possibly originating some additional ones. Hence my reason for duplication and coding. It is not perfect or all inclusive but it is a start.

I added one more page to list the problems the FAA has caused and another few to list some problems airlines have "in house". I am sure you can add to both lists.

I look forward to seeing you all in Dallas.

Regards,

Jim

Jim Frisbee

(M) MANUFACTURERS

M1. Unique parts are being sold directly to distributors/surplus suppliers/repair stations/operators by manufacturers who hold no certification such as a TC, PC, TSO or PMA; i.e., an un-certificated part.

M2. Unique parts which do not meet specification are being sold to distributors/surplus suppliers/repair stations/operators by both certificated and un-certificated manufacturers; i.e., non specification parts.

M3. Manufacturers who hold certification refuse to provide material certifications with the new parts either they sell or on the parts which are sold through their distributors which causes problems for distributors/surplus suppliers/repair stations/operators; i.e., a doubtful status part.

M4. Manufacturers both certificated and non certificated hold differing opinions over what constitutes a unique vs standard vs commercial part. This causes a great deal of consternation for distributors/surplus suppliers/repair stations/operators since unique parts must be manufactured by a certificate holder; e.g. TC, PC, TSO or PMA.

M5. Manufacturers who are TC and PC holders (TSO and PMA holders are required) are not required by regulation to mark or otherwise identify a unique part. This causes problems for distributors/surplus suppliers/repair stations/operators.

M6. Manufacturers provide kits with material lists but the individual parts within a kit are not tagged or identified as being a part of the kit or that they are serviceable. This becomes a problem for surplus suppliers/repair stations/operators when the kit is opened or broken down; i.e. a doubtful status part.

M7. Certificated manufacturers are rebuilding parts for surplus suppliers/repair stations/operators and refuse to attach a "Return to Service" tag or include a material certification indicating status and work performed; i.e., a doubtful status part.

M8. Certificated manufacturers are directing repair stations/operators (via their IPC) to purchase parts from un-certificated manufacturers or their distributors; i.e., un-certificated parts.

(D) DISTRIBUTORS

M1. Unique parts are being sold directly to distributors/surplus suppliers/repair stations/operators by manufacturers who hold no certification such as a TC, PC, TSO or PMA; i.e., an un-certificated part.

M2. Unique parts which do not meet specification are being sold to distributors/surplus suppliers/repair stations/operators by both certificated and un-certificated manufacturers; i.e., non specification parts.

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M5. Manufacturers who are TC and PC holders (TSO and PMA holders are required) are not required by regulation to mark or otherwise identify a unique part. This causes problems for distributors/surplus suppliers/repair stations/operators.

(S) SURPLUS SUPPLIERS

M1. Unique parts are being sold directly to distributors/surplus suppliers/repair stations/operators by manufacturers who hold no certification such as a TC, PC, TSO or PMA; i.e., an un-certificated part.

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M7. Certificated manufacturers are rebuilding parts for surplus suppliers/repair stations/operators and refuse to attach a "Return to Service" tag or include a material certification indicating status and work performed; i.e., a doubtful status part.

S1. Certificate holders such as manufacturers, repair stations and airlines are selling surplus parts with either no certificatio of status or with certifications where the information provide is subject to variable interpretation; i.e., a doubtful status part.

S2. Surplus suppliers, who are not certificate holders, the world over have vast amounts of aircraft parts that have dubious or no certification documents showing traceability to a previous owner who was a certificate holder; i.e., a doubtful status part.

(S) SURPLUS SUPPLIERS

RS1. Repair stations are returning parts to service and are not providing the owner with an adequate record of maintenance accomplished. This becomes a particular problem for a 121 air carrier who is required to maintain a record of the last maintenance performed.

(RS) Repair Stations

M1. Unique parts are being sold directly to distributors/surplus suppliers/repair stations/operators by manufacturers who hold no certification such as a TC, PC, TSO or PMA; i.e., an un-certificated part.

M2. Unique parts which do not meet specification are being sold to distributors/surplus suppliers/repair stations/operators by both certificated and un-certificated manufacturers; i.e., non specification parts.

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M8. Certificated manufacturers are directing repair stations/operators (via their IPC) to purchase parts from un-certificated manufacturers or their distributors; i.e., un-certificated parts.

S1. Certificate holders such as manufacturers, repair stations and airlines are selling surplus parts with either no certification of status or with certifications where the information provided is subject to variable interpretation; i.e., a doubtful status part.

(RS) Repair Stations

S2. Surplus suppliers, who are not certificate holders, the world over have vast amounts of aircraft parts that have dubious or no certification documents showing traceability to a previous owner who was a certificate holder; i.e., a doubtful status part.

RS1. Repair stations are returning parts to service and are not providing the owner with an adequate record of maintenance accomplished. This becomes a particular problem for a 121 air carrier who is required to maintain a record of the last maintenance performed.

(O) Operators
(Airlines)

M1. Unique parts are being sold directly to distributors/surplus suppliers/repair stations/operators by manufacturers who hold no certification such as a TC, PC, TSO or PMA; i.e., an uncertificated part.

M2. Unique parts which do not meet specification are being sold to distributors/surplus suppliers/repair stations/operators by both certificated and un-certificated manufacturers; i.e., non specification parts.

M3. Manufacturers who hold certification refuse to provide material certifications with the new parts either they sell or on the parts which are sold through their distributors which causes problems for distributors/surplus suppliers/repair stations/operators; i.e., a doubtful status part.

M4. Manufacturers both certificated and non certificated hold differing opinions over what constitutes a unique vs standard vs commercial part. This causes a great deal of consternation for distributors/surplus suppliers/repair stations/operators since unique parts must be manufactured by a certificate holder; e.g. TC, PC, TSO or PMA.

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(O) Operators
(Airlines)

RS1. Repair stations are returning parts to service and are not providing the owner with an adequate record of maintenance accomplished. This becomes a particular problem for a 121 air carrier who is required to maintain a record of the last maintenance performed.

(F) FAA

1. The FAA has made statements on many occasions that the entire problem with parts is an operator/owner/airline problem. The statement is untrue.

2. The FAA has made the statement that it is the owner/operator/airline who is ultimately and totally responsible should an unapproved, un-certificated or un-airworthy part be installed on their aircraft. The statement is neither totally true or regulatory. Each certificated person whether it be a manufacturer, repair station or airline has responsibility and privilege. One certificate holder cannot be held responsible for what another certificate holder does. If that were so, then it follows that he would also have to enjoy the other certificate holder's privilege. Neither the act nor the regulations permit transferability of either responsibility or privilege.

3. The FAA has presented and stated that a manufacturer's Illustrated Parts Catalog (IPC) is not required, reviewed or approved by the FAA and should not be used to determine or substantiate the FAA approval status of any material, parts, components or appliances listed there in. The statement is ludicrous in the least and misleading at best. An IPC is a direct excerpt of design data drawings. It is the definitive document utilized to maintain a type design by specifying only those parts identified in the design data. The installation of any additional part or any part not so designated by the IPC constitutes alteration of the approved design of the aircraft, engine, propeller or appliance.

4. The FAA has stated that a mechanic's certificate does not grant him authority, responsibility or privilege to conform a part to its design data. That statement is both puzzling and non-regulatory. If a mechanic cannot do that with a part, then how could he possibly maintain the type design of an entire aircraft when he performs maintenance, preventative maintenance, repair, inspection, alteration, etc.

"In-House" Airline Problems

1. Air carriers are using a wide variety of material certifications which they require to be attached to part they buy and another variety of documents they use to sell parts surplus. Data and definition on all of them is variable and misleading.

2. Air carriers cannot decide who they want to sign off on a certification when either they buy or sell a part.

3. Air carriers have systems that do not assure their being able to identify a part they make from one they have purchased. (Same P/N)

4. Air carriers have continuous problems with parts getting hung up in Receiving Inspection due to uncertainty over status, certification, traceability and required data.

5. Air carriers have particular problems over what airworthiness assurances they are to determine when they receive an expendable part in an "as is" condition.

6. Air carriers with even full capability for overhaul often lack specific procedure on the depth of test, repair, tear down, etc., they want on a part when the status is even reasonably known. They have even greater dilemma's when they have no repair capability and they need the part quickly.

7. Many air carriers lack complete published procedure on how their personnel are to function. The problems range from negotiated purchase all the way to installation on the aircraft. Often when procedure is published it is by different departments and it does not dovetail.

8. Air carriers who purchase parts from foreign sources often have very inadequate or non-existing procedure to determine status.

9. Air carriers have particular problems with parts that are drop shipped directly to a line station. This is especially a problem if they come from anyone except the original manufacturer who is a certificate holder (parts pool airlines excepted?) This is especially so with expendables or standard parts since chemical or physical testing is not possible.

10. Procedures for the sampling inspection of standard or expendable parts at air carriers is often inconclusive at best because physical or chemical testing is not performed. This can cause particular problems when the parts or material is bought from someone other than the manufacturer.

11. Air carriers have inadequate procedures for conforming unidentified parts found within the carrier's operation. They are often simply scrapped.

12. Air carriers often have inadequate testing capabilities to test parts they have manufactured by local shops. They also have poor systems for identifying such parts when they are stocked

"In-House" Airline Problems

13. Air carriers often have inadequate procedure and assurance that a scrapped part is rendered unusable.

14. Air carriers often have either non existent or poor systems for the collection of warranty on new parts, repaired parts and parts purchased from a surplus supplier.

15. Most air carriers do not have good established procedure on how to investigate, notify, report or gain assistance from other agencies when parts are suspected of being un-certificated, counterfeit or otherwise from what they are purported to be.

STATEMENT OF THE HONORABLE DAVID R. HINSON, FEDERAL AVIATION ADMINISTRATOR, BEFORE THE SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS, SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT AND THE DISTRICT OF COLUMBIA, CONCERNING THE SAFETY OVERSIGHT OF SUSPECTED UNAPPROVED PARTS. MAY 24, 1995.

Mr. Chairman and Members of the Subcommittee:

I welcome the opportunity to appear before you today on the subject of what we refer to in the aviation industry as Suspected Unapproved Parts or SUPs. With me today are Mr. Tony Broderick, Associate Administrator for Regulation and Certification, and Mr. Bill White, Deputy Director of Flight Standards.

At the outset, let me address the bottom line for us all, and that concerns safety. Simply stated, do SUPs pose a significant safety problem for our air transportation system? No. Are they a safety concern to the FAA? Of course. Could they potentially become a safety problem if we don't continue to address their root causes? Yes, and that is exactly why we have a number of important initiatives underway to do just that, on which I will elaborate in a moment.

Let me briefly put the safety issue into better perspective, giving you some foundation for why we reach the safety conclusions that we do. Perhaps most telling is that there are literally hundreds of millions of parts on our Nation's airlines--a B-747 alone has over 6,000,000 parts--and we estimate that about 26,000,000 parts (some like fuel pumps containing many individual parts) are changed each year. Since 1989, we have received only about 1,100 reports of SUPs. FAA's investigation of those reports has led (as of mid-May) to 114 FAA enforcement actions and 69 initiatives, of which 8 were airworthiness directives. More telling, however, is that the National Transportation Safety Board, or the NTSB, which investigates airline and general aviation accidents in the U.S., has never found that an unapproved part has contributed to a U.S. airline accident. An FAA review of the NTSB's computerized accident data from 1983 to 1992 disclosed 11 cases where a "bogus" part was noted as a contributing factor in a general aviation accident, but on further analysis of those records we found, and the NTSB has agreed, that, in each instance, incorrect maintenance rather than a counterfeit or fraudulently documented part was the problem. We have asked the Board to correct this data to eliminate confusion.

NTSB Chairman Vogt also addressed the topic of unapproved parts in testimony before the House Committee on Appropriations, on March 16, 1993, and in record material for that hearing, indicated:

> The Safety Board has not identified the use of an unapproved part or a counterfeit (bogus) part as a cause in any air carrier accident. The Safety Board has, however, cited the use of unapproved parts as a causal factor in general aviation accidents. Typically, this involves the use of automobile parts or hardware available from a local hardware store substituted for the more expensive approved aircraft part. The cause of these accidents is attributed to improper maintenance.
>
> We are aware of the Department of Transportation Inspector General's efforts to identify the manufacturers of parts that are purported to be approved, but for which no manufacturer's approval has been issued. While such parts have not been the cause of an accident, the potential safety hazard warrants concern.

Significantly, from a risk assessment perspective, the issue of bogus or unapproved parts is not included in the NTSB's Top Ten Most Wanted List, nor does it find a place on the list of important accident causal factors developed by Boeing in a comprehensive report.

Safety analyses have consistently shown that human error is associated with the vast majority of aircraft accidents. That is not to say that we should ignore this issue. Since becoming Administrator, I have reorganized the agency, created a new safety office, and set a new goal of "0" accidents, which is enabling us to be proactive, not reactive.

The Office of the Inspector General (OIG) conducted an audit of parts at 14 domestic and foreign repair stations, and reported their findings on March 7,1994. The report found that, of a total of 495 types of newly purchased parts, 43% (95% in the case of parts from distributors) had insufficient documentation and were considered by the OIG to be suspected unapproved parts. The report contained specific examples for only 64 part types. FAA then initiated an investigation of the 64 cases cited, finding, however, that there was adequate information to follow up on the OIG findings in only 51 cases. FAA's technical findings were dramatically different from the auditors' findings. Of these 51 cases of suspected unapproved parts, FAA safety inspectors found:

- 31 cases involved parts that did have sufficient documentation to trace them to an approved source.
- 11 cases involved examples of mechanics or repair stations exercising their professional prerogative, under FAA regulations, to substitute similar, equivalent parts in the course of a repair. In fact, 8 of the 11 cases involved standard parts.
- 1 case involved a mistaken assumption by the OIG that a part had been installed, when, instead, it had merely been ordered at the same time as other parts.
- 4 cases did involve suppliers to a Production Approval Holder shipping parts to customers without direct-ship authority. The parts, however, met the same safety standards as the parts they supplied to the PAH.
- 2 cases resulted from improper maintenance--using an approved part but for the wrong application.

- 1 case involved no production approval.
- 1 case involved a counterfeit part. Significantly, though, the FAA and the original manufacturer had learned of this type of counterfeit part and had previously advised the industry and the OIG about it. The repair station had been alerted to the potential problem with this type of part and should not have used it. It should be noted that the use of the part would not have produced a safety hazard, nor was any evidence found that it had been installed on a U.S.-registered aircraft.

Thus, of the 51 cases in which FAA had adequate information upon which to assess the OIG findings, only 8 cases (16%) involved problems of any nature and only 1 case (2%) was directly related to unapproved parts (that being a previously-known counterfeit parts case). Put another way, FAA verified the integrity of 98% of these parts.

I cite the preceding information only as a means of adding perspective to this issue, not to demonstrate that unapproved parts ought not be of concern to us. Clearly, they should be and they are. That's why we have a variety of initiatives underway to better address the problem. But before discussing those efforts, I would like to explain what we mean when we talk about approved or unapproved parts and describe the systems we have in place.

First, it's important to recognize the key distinction between two types of unapproved parts: counterfeit parts or parts with fraudulent documentation--often called bogus parts--that are introduced into the parts inventory by criminal acts, bypassing FAA regulatory standards; and parts that are manufactured either without FAA production authority or without proper quality assurance. Discussions of unapproved parts often merge the two types of unapproved parts, which can create confusion, since the nature of the problems and, indeed, the remedies are quite different. Criminal investigation and prosecution is the appropriate remedy for those who make or sell counterfeit aviation parts, and we applaud the DOT IG and the Department of Justice for their efforts to seek criminal sanctions against parts counterfeiters. Our experience, however, has been that, by far, most unapproved parts cases are associated with lack of compliance with FAA production and maintenance regulations and procedures rather than counterfeit or fraudulently documented parts.

There are several means through which a part is approved to be installed on an FAA type-certificated aircraft, aircraft engine, or propeller. Although the FAA Administrator may approve other types of systems, parts are typically approved through one of 3 means: l) a Parts Manufacturing Approval (PMA) issued by FAA under 14 CFR 21.303; 2) a Technical Standard Order (TSO) authorization issued by FAA for products such as avionics; or 3) a production approval issued in conjunction with type-certification procedures for a product.

Under FAA regulations, any replacement or modification parts that are produced for sale for installation on a type-certificated product must be produced under one of the specified means of approval, unless: l) they are parts produced by an owner or operator for maintaining or altering that person's own product; or 2) they are standard parts (such as bolts or nuts) that conform to established industry standards or U.S. specifications. Naturally, given the complex nature of many aviation products, many manufacturers rely on components or parts manufactured by other sources, some of which may not hold an FAA production approval. In this case, the production approval holder (PAH), who uses those parts from such a supplier, must have a system of quality control in place to oversee the quality of the parts produced by that supplier.

A parts supplier to a particular PAH may use either of 2 approved means to provide replacement parts for products that are in service. The supplier may receive the PAH's approval to ship parts directly to the end user or to a parts distributor, under a method called the "direct-ship" method. In this case, the part is produced under the PAH's approved quality assurance system, and the PAH is responsible for the part's conformance to the type design and with production quality assurance standards. Under the second means, the supplier may obtain its own PMA or TSO approval from the FAA.

In order to receive a Parts Manufacturing Approval or a Technical Standard Order from the FAA, a supplier must demonstrate that a part's design complies with applicable FAA regulations and must establish an FAA-approved production quality assurance system to assure the quality of the parts produced. We have experienced a problem with some suppliers over the years in this area, with some suppliers shipping parts directly to end users without having received a PMA or TSO from the FAA. Although the parts are identical to the parts they supply to the Production Approval Holder, and thus do not represent a safety threat, they nevertheless are considered unapproved parts. As I will explain shortly, we are acting to tighten up controls over this area to bring such suppliers into conformity with our approval process.

I mentioned earlier that the use of standard parts is permitted under our regulations. All standard parts have part numbers with recognized prefixes. A parts installer may replace a standard part with another identical standard part or may substitute an equivalent standard part. Generally, standard parts are not used for critical applications on transport category aircraft for which a part's failure would have significant safety consequences. Nevertheless, to assist in guarding against standard parts that do not conform to recognized specifications, we participate in the Government/Industry Data Exchange Program, along with other government agencies and industry representatives.

Consistent with the FAA's safety regulatory structure generally, our regulations provide that maintenance personnel, owners, and operators bear responsibility for using approved or otherwise appropriate parts in their maintenance work. This includes certificated repair stations as well as airline maintenance personnel. Repair stations performing maintenance work on air carrier aircraft must also meet the requirements of their customer's FAA-approved maintenance programs.

There are a variety of sources to which maintenance personnel can refer to determine whether a replacement part is appropriate. The manufacturer of each product or appliance prepares a maintenance manual defining the appropriate maintenance and wear limits for some parts of the equipment. There is also a manufacturer's illustrated parts catalogue (IPC), which lists most parts that make up the product and uses recognized standard part numbers to identify whether a part is a standard part. If a part is not a standard part, the IPC typically lists where the part may be purchased. Information may also be available from manufacturers or type-certificate holders or in manufacturers' service bulletins and service letters. Once a part number is properly identified, the installer may use either an acceptable part from stock or order the part from an appropriate source. When a part is received, the installer verifies that it is the correct part. It is important to note that maintenance personnel are trained to spot unusual conditions of parts, and, in fact, many of the unapproved parts reported to the FAA have been detected by installers.

Thus, the FAA's basic regulatory structure for parts provides safeguards to help assure airworthiness of parts at both the manufacturing and the installation/operation phases of the parts process. Distributors, on the other hand, are not regulated by the FAA. They are neither responsible for the production of parts nor for their selection or use in maintenance activities. In fact, as intermediaries, parts brokers may not even have possession of parts Under FAA's rules, it is the end users--repair stations and certificated maintenance personnel--who bear responsibility for assuring the airworthiness of parts before they are installed. They may determine parts' conformity to applicable specifications and their airworthiness through documentation, through inspection and maintenance, or through a combination of both methods.

As I noted earlier, FAA's activities in this area show that most problems related to unapproved parts result from the lack of a PMA or TSO or from errors in maintenance or documentation. We have found parts in use and in inventories that suppliers have distributed directly to customers without their production under a Parts Manufacture Approval or without direct-ship authority from the Production Approval Holder. Maintenance personnel also make mistakes. They may, for example, use the incorrect data for a repair or may misread a part number and install the incorrect part which, even if an approved part, becomes an unapproved part for that repair. Since these areas constitute the vast majority of adverse findings related to unapproved parts, we have concentrated our efforts on them. When we do encounter evidence of counterfeit or fraudulently documented parts, we promptly address the safety concerns associated with those parts and refer the case to the OIG for criminal investigation, providing such technical expertise as may assist in their investigative efforts.

I would like to take a few moments now to discuss some of the steps we have taken and will be taking to address the unapproved parts issue. Many of these initiatives also respond to OIG recommendations. In the past several years, we have issued several Advisory Circulars, providing guidance to the aviation community on suspected unapproved parts. Last July, we issued 3 such circulars concerning "Supplier Surveillance Procedures," "Detecting and Reporting Suspected Unapproved Parts," and "Disposition of Unsalvageable Aircraft Parts and Materials." Last year we also issued a revision to our old Airworthiness Approval Tag, as a first attempt at creating a combination universal parts control tag and maintenance release acceptable anywhere in the world.

We chartered a Parts Approval Action Team in September 1992, and followed that up in August 1993, with the establishment of a formalized FAA Suspected Unapproved Parts Program. Since 1989, we have had a headquarters office and an office at Dulles Airport overseeing FAA's involvement with SUPs.

We have actively involved our Aviation Rulemaking Advisory Committee, comprised of industry and public representatives, with this issue. Based on their work and recommendations, including minority opinions that resulted from these efforts, we are developing a new advisory circular on "Determining Disposition of Undocumented Parts." This will address the appropriate means of returning to service or otherwise disposing of inadequately documented parts sitting in inventories. In addition to other guidance types of material that we have issued and on which we are working, we have conducted approximately 150 public seminars on the SUPs problem, both domestically and internationally.

In a major commitment to deal with the issue of military surplus parts, we have jointly chartered an effort with the Defense Department, pursuant to which we are establishing a process for identifying dual use (military-civil) flight safety critical aircraft parts. Through that effort, FAA and DOD experts are working to define a process to ensure that critical parts lacking documentation, proper configuration, or serviceability are identified and mutilated prior to their disposal. Their value will only be as salvage, not as possible unapproved replacement parts for our commercial fleet.

With regard to parts suppliers who do not hold a PMA, we issued a Federal Register notice in March to offer strong encouragement to suppliers to seek an FAA PMA for their products. Suppliers were given until May 30, to apply for an appropriate PMA or to subject themselves to FAA penalties. Not surprisingly, we have received numerous PMA applications in response to that notice. We are also working with an industry team, chaired by the Aerospace Industries Association, to develop a comprehensive PMA data base to be available to industry.

There is also underway a significant effort concerning parts distributors and brokers. The OIG had recommended to us that we take action to directly regulate these distributors, of which there are some 2,000-5,000, depending on how you define them. We have declined to accept that recommendation, believing that the need to formally regulate distributors has not been shown. Thus, the imposition of new Federal regulations that could be costly and burdensome without producing corresponding safety benefits would simply be unwarranted. Licensing of parts distributors could also logically lead to pressure for the added regulation of airlines to require them to document for each part whether it was purchased from an original equipment manufacturer, a PMA, or a licensed distributor. Further, at a time of government downsizing, the licensing of distributors by the FAA would needlessly add to the heavy workload of our safety workforce and create unnecessary cost for the government as well. Instead, we believe that a far better approach is for an accreditation program for parts distributors to be established.

We are working cooperatively with an industry-run, voluntary accreditation program, under development by the Aerospace Industry Regulation of Distributors Task Force. We plan to work aggressively with industry to implement and use this program for distributors. An advisory circular is under development by the FAA that will specifiy quality standards and auditing criteria. As part of this effort, we are considering what incentives we can offer to certificate holders who obtain parts only from distributors that have been accredited. In a corresponding effort, we are developing an FAA rulemaking proposal that would make it a regulatory violation for a distributor or other person to misrepresent that a product is an FAA-approved product. Even though a distributor's activities would not directly be licensed by the FAA, their false assertions would be subject to FAA's regulatory authority.

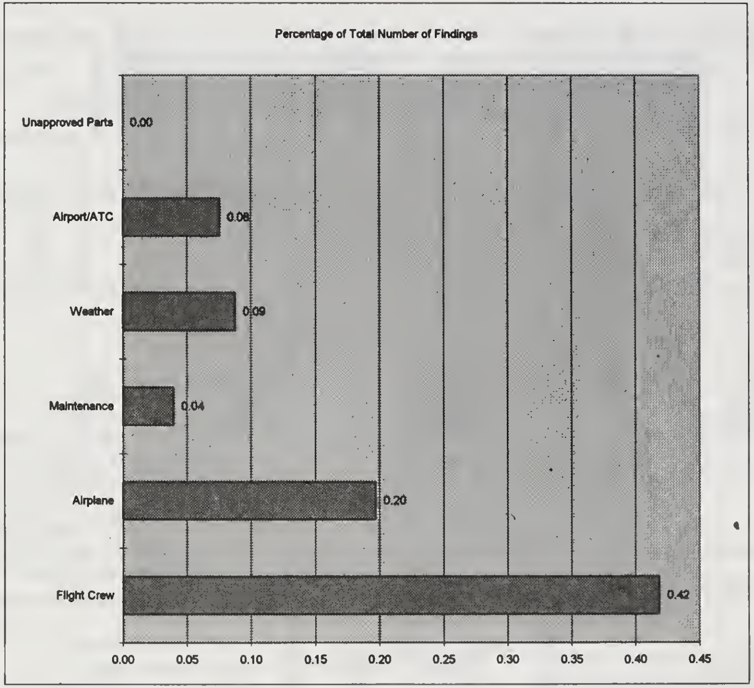
In closing, Mr. Chairman, let me assure you and the Members of the Subcommittee that the FAA does not take lightly the issue of unapproved parts. On the contrary, it is our expectation that all parts used on aircraft be approved for that purpose. Although we have taken a variety of actions to address this issue, we recognize that there is much ahead of us. Aviation safety is a serious responsibility, and one that rightfully must be shared by industry and government. I am confident that, in concert with industry, we are heading in the right direction, and that we will continue to show progress.

That completes my prepared statement. I would be pleased to respond to questions you may have at this time.

Primary Cause Factors

NTSB Accidents involving SCH121 Airplanes

Number of Findings
0
38
44
20
99
210



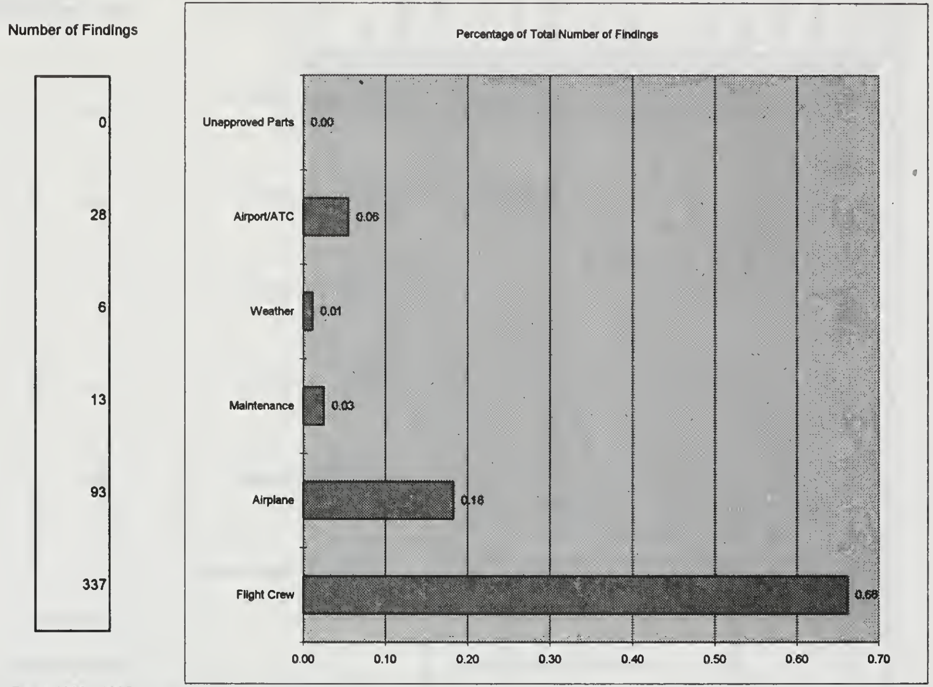
Inclusive Dates 1983 - 1995
Total Accidents: 237

NASDAC 95100

Data as of: 03-May-95

Primary Cause Factors

NTSB Accidents involving SCH135 Airplanes

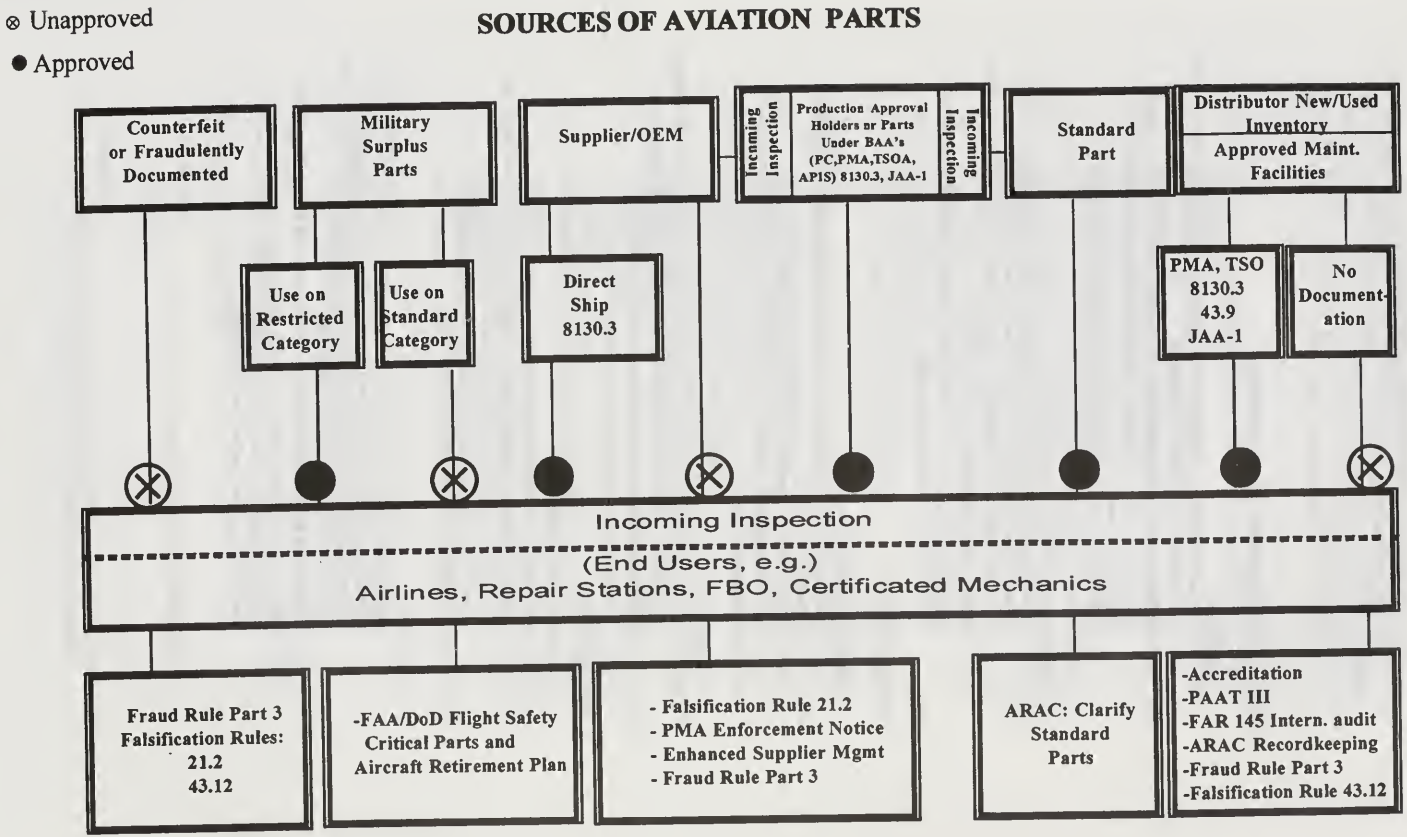


Inclusive Dates 1983 - 1995
Total Accidents: 220

NASDAC 95100

Data as of: 03-May-95

SOURCES OF AVIATION PARTS


⊗ Unapproved
● Approved
Counterfeit or Fraudulently Documented
Military Surplus Parts
Supplier/OEM
Incoming Inspection
Production Approval Holders or Parts Under BAA's (PC,PMA,TSOA, APIS) 8130.3, JAA-1
Incoming Inspection
Standard Part
Distributor New/Used Inventory
Approved Maint. Facilities
Use on Restricted Category
Use on Standard Category
Direct Ship 8130.3
PMA, TSO 8130.3 43.9 JAA-1
No Documentation
Incoming Inspection
(End Users, e.g.)
Airlines, Repair Stations, FBO, Certificated Mechanics
Fraud Rule Part 3 Falsification Rules: 21.2 43.12
-FAA/DoD Flight Safety Critical Parts and Aircraft Retirement Plan
- Falsification Rule 21.2
- PMA Enforcement Notice
- Enhanced Supplier Mgmt
- Fraud Rule Part 3
ARAC: Clarify Standard Parts
-Accreditation
-PAAT III
-FAR 145 Intern. audit
-ARAC Recordkeeping
-Fraud Rule Part 3
-Falsification Rule 43.12

REGULATIONS, POLICY AND INITIATIVES

1. Counterfeit or Fraudulently Documented Parts

Regulations:

⇨ FAR section 21.303 - procedural rule that prescribes that only approved parts are to be installed on type certificated aircraft.

⇨ FAR section 21.2 - Addresses falsification of applications, reports, or records.

⇨ FAR section 43.12 - Addresses falsification. reproductions or alterations of maintenance records.

⇨ FAR section 43.13 - Addresses maintenance standards for all parts.

Initiatives:

⇨ Rulemaking, FAR Parts 3, 21, 43 - Proposed rules that would prohibit false and misleading statements regarding civil aircraft, airframes, aircraft engines, propellers, appliances, component parts, and materials, including standards parts, that are used, or may be used on civil aircraft.

⇨ Rulemaking, FAR Part 3 - Proposed rule that prohibits fraud and intentional falsification in applications and records.

2. Military Surplus

Regulations/Policy/Guidance:

⇨ FAR section 21.305 - Provides for approval of materials, parts, processes and appliances.

⇨ Order 8130.2, Production Approval and Surveillance Procedures.

⇨ AC 20.62, Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts.

Initiatives:

⇨ FAA/DoD Process Action Team - Joint effort to assure only properly documented Flight Safety Critical Parts are surplused to the public. A continuing effort will address surplus whole aircraft and other military aviation parts.

3. Supplier/OEM

Regulations/Policy/Guidance:

⇨ FAR Part 21 - Certification Procedures for Products and Parts.

⇨ Order 8130.2C, Airworthiness Certification of Aircraft and Related Approvals.

⇨ Order 8100.7, Aircraft Certification Systems Evaluation Program

⇨ Order, 8120.2, Production Approval and Surveillance Procedures

⇨ AC 21-20, Supplier Surveillance Procedures.

Initiatives:

⇨ Rulemaking, FAR Parts 3, 21, 43 - Proposed rules that would prohibit false and misleading statements regarding civil aircraft, airframes, aircraft engines, propellers, appliances, component parts, and materials, including standards parts, that are used, or may be used on civil aircraft.

⇨ PMA Federal Register Notice - Policy on enforcement of FAR section 21.303, PMA.

⇨ Supplier Management Team - Team chartered to review supplier surveillance to develop enhancements to the overall process.

4. **Production Approval Holders/Parts Under BAA's** - A manufacturer who holds a FAA Approved Production Inspection System (APIS), Production Certificate (PC), Parts Manufacturing Approval (PMA), or Technical Standard Order Authorization (TSOA) who controls the design and qulaity of a product or part thereof. This approval provides for the establishment of a quality control system that assures the production of airworthy products and parts.

Regulations:

- ⇨ FAR Part 21 - Procedural regulations for type, production and airworthiness certification.
- ⇨ FAR Parts 23, 25, 27, 29, 31, 33 - Regulations that govern the airworthiness standards for aircraft.
- ⇨ FAR Part 45 - Regulations for the identification of aircraft and related products and nationality and registration marking.
- ⇨ FAR Part 183 - Regulations for delegations.
- ⇨ Order 8120.2, Production Approval and Surveillance Procedures.
- ⇨ Order 8130.2, Airworthiness Certification of Aircraft and Related Approvals.
- ⇨ Order 8100.7, Aircraft Certification Systems Evaluation Program - Provides a systematic approach to the surveillance of production approval holders and their suppliers.
- ⇨ Order 8110.4, Type Certification Procedures.
- ⇨ Order 8130.21, Procedures for Completion and Use of FAA Form 8130-3, Airworthiness Approval Tag.
- ⇨ AC 21-20, Supplier Surveillance Procedures.
- ⇨ AC 21.303, Parts Manufacturing Approval.
- ⇨ AC 21-18, Bilateral Airworthiness Agreements.

Initiatives:

- ⇨ Aviation Rulemaking Advisory Committee (ARAC) Production Certification and Parts Working Group - Regulations will be changed to require the marking of all aviation parts. It will also enhance FAR section 21.303 to provide better enforcement of the regulations.
- ⇨ Supplier Management Team - Team chartered to review supplier surveillance to develop enhancements to the overall process.
- ⇨ Publication of AC 21-38, Disposition of Unsalvageable Aircraft Parts and Materials.- Gives methods for the proper disposal of non conforming material dispositioned as scrap.
- ⇨ Suspected Unapproved Part Program - Order 8120.10 and AC 21-29 - Provides an overall systematic approach for the detecting, reporting and processing of suspected unapproved parts.
- ⇨ Development of various educational initiatives such as brochures, videos, and seminars.
- ⇨ Order 8110.XX (PMA) - Enhances procedures for PMA by identically.
- ⇨ PMA Data Base - Industry group intends to develop database for commercial availability.
- ⇨ PMA Phase I & II - Simplified PMA procedures.
- ⇨ PMA Federal Register Notice - Policy on enforcement of FAR section 21.303.

5. **Standard Parts**

Regulations:

- ⇨ FAR section 21.303,(b)(4) - replacement and modification parts.

Initiatives:

- ⇨ ARAC Parts Working Group - Defining Standard and Commercial Parts.

6. **Distributors/Parts in Inventory**

Regulations:

- ⇨ FAR Part 43 - Maintenance, Preventative Maintenance, Rebuilding, and Alteration.

Initiatives:

- ⇨ PAAT III - Parts Approval Action Team Phase III, To Develop an Advisory Circular for Determining Disposition of undocumented parts in inventory.

7. End User (e.g., Airlines, Repair Stations)

Regulations:

Airlines:

- ⇨ FAR Part 121- FAA Certification of Large Commercial Aircraft Operations, 12,500lbs. or more.
- ⇨ FAR Part 135- FAA Certification of Small Commercial Aircraft Operations, less than 12,500lbs.
- ⇨ Air carrier mechanic requirements in accordance with FAR Parts 121.373, 135.435 and FAR Parts 65 Subpart D
- ⇨ Continuous Analysis Surveillance System by FAR Part 121.373
- ⇨ Incoming Inspection of Aircraft Parts and Services
- ⇨ Quality Assurance Audits (Internal/External) Aircraft Parts and Services
- ⇨ Coordinating Agency for Supplier Evaluation (CASE)- Air carriers Quality Assurance Auditors Authorized by FAA via Operations Specifications

Repair Stations:

- ⇨ An air agency certificated under FAR Part 145 to perform maintenance and alterations on US registered aircraft.
- ⇨ FAR section 145.39 sets forth the minimum requirements for personnel to manage the air agency, perform the maintenance, inspect the product and return the product to service.
- ⇨ FAR section 145.45 sets forth the requirements for an inspection system for the product to be maintained or altered.
- ⇨ FAR section 145.45(c) requires the air agency to generate an inspection procedures manual (IPM) which spells out the policies and procedures which the air agency must follow.
- ⇨ An incoming inspection procedure is required in the IPM to establish the condition and approval of incoming parts.
- ⇨ FAR Part 145 Air agencies must comply with FAR Part 43 Maintenance, Preventive Maintenance, Rebuilding and Alterations.
- ⇨ The return to service is completed in accordance with FAR section 43.9.
- ⇨ Coordinating Agency for Supplier Evaluation (CASE) is an industry organization that completes quality assurance inspections of air agencies on behalf of certificated 121/135 air carriers.

Initiatives:

- ⇨ FAR Part 145 Is being revised to include modern day technology, incorporate a quality assurance program and FAA/JAA harmonization.
- ⇨ Education Flight Standards generated a course for Airworthines Inspectors certification & Surveillance of foreign and Domestic Repair Stations.
- ⇨ Advisory Circular 145. XXX Repair Station Internal Evaluation Programs, designed to encourage and guide repair stations to create an internal self audit program.
- ⇨ Accreditation of Distributors - Aircraft Parts Suppliers Establish Quality Control System to ensure FAA Approve Parts are received and sold.
- ⇨ PAAT III - Aviation Rulemaking Advisory Committee, Parts Approval Action Team Phase III, To Develop an Advisory Circular for Determining Disposition of undocumented parts in inventory.
- ⇨ ARAC Recordkeeping- Aviation Rulemaking Advisory Committee, To Develop recordkeeping requirements for Airworthiness Determinations of Aircraft Parts

Definitions

General

- Production Approval Holder. A person who has been issued a production certificate, approved production inspection system, parts manufacturer approval, or technical standard order authorization, who controls the design and quality of a product or part thereof.

- Repair Station. A person who has been issued a certificate to perform maintenance and alterations of airframes, powerplants, propellers, or appliances.

- Air Carrier. Any citizen of the United States who undertakes, whether directly or indirectly or by a lease or any other arrangement, to engage in air transportation and are responsibile for the maintenance, preventive maintenance, or alterations in accordance with FAR parts 121, or 135.

Definitions

Approved Parts

- Parts produced under an FAA approved production system (APIS, PC, TSOA, PMA) in conformity with FAA approved data. Also, in any other manner approved by the Administrator.
  - Approved Production Inspection System (APIS) under FAR Subpart F for complete aircraft, engines, propellers, and parts thereof.
  - Production Certificate (PC) under FAR Subpart G for complete aircraft, engines, propellers, and modifications to and parts thereof.
  - Technical Standard Order Authorization (TSOA) under FAR Subpart O for appliances that meet a specific TSO specification such as altimeters, radios, and aircraft instruments.
  - Parts Manufacturer Approval (PMA) under FAR § 21.303 for replacement and modification parts

Definitions (Continued)

Acceptable Parts

- Standard part (such as nuts and bolts) conforming to an established industry or U.S. specification
- Parts produced by an owner or operator for maintaining or altering his or her own product.
- Parts for which inspection and tests have been accomplished by properly authorized persons to determine that the part conforms to applicable airworthiness standards for the aircraft.

Definitions (Continued)

Unapproved Parts ⊗

- Suspected Unapproved Part. This includes a part, component, or material that has not been manufactured in accordance with approved procedures referenced in FAR § 21.305, has not been repaired in accordance with FAR part 43, does not conform to an FAA-approved type design, or does not conform to established industry or U.S. specifications (standard parts).

- Counterfeit Part. An imitation or copy of an approved part, with the intent of deceit.

- Fraudulently Documented Parts. These include parts, components, or materials that fail to meet the design/material requirements for the part, have undergone illegal repairs or alterations, or have been used to the maximum allowed service life, but the documentation represents them as new, repaired, or overhauled parts.

STATEMENT
OF

HOWARD B. DAVIDOW
President
ETC.
Aviation Consultants

TO THE
SENATE SUBCOMMITTEE ON OVERSIGHT
OF GOVERNMENT MANAGEMENT
AND THE
DISTRICT OF COLUMBIA
COMMITTEE ON GOVERNMENT AFFAIRS
UNITED STATE SENATE

MAY 22, 1995

My name is Howard B. Davidow and I have been actively involved in aviation since 1951. In 1951 I started my aviation career as a commercial pilot, later served in the United States Air Force as a commissioned officer and flight engineer on the B-36 bomber aircraft. In 1959 I entered the world marketing of commercial aviation sales, distribution and brokerage of aircraft equipment and components. These activities included factory new aircraft equipment distributorships, airline and manufacturer's surplus materials and DOD military surplus equipment. I have owned and operated several FAA certificated repair stations which overhauled a broad spectrum of aircraft parts and equipment.

In the mid 1970's our sales expanded into jet engines, aircraft and other major airframe components including landing gears, control surfaces, etc. I am currently an aviation consultant on matters concerning bogus - counterfeit, other unapproved and stolen/altered aircraft parts. I am a Federal Court expert witness on these subjects. I am a technical advisor to the Federal Bureau of Investigation in Miami, Florida and a lecturer and instructor to law enforcement agencies concerning these subjects.

My knowledge of Suspected Unapproved Parts (SUP's) has covered a span of over 43 years. The problem has clearly existed and was focused on by the Flight Safety Foundation, Inc. as early as 1957 in their first publication titled "THE PROBLEM OF BOGUS PARTS" by Joseph M. Chase. This was followed by the publication in 1964 titled " BOGUS PARTS - A CONTINUING THREAT TO SAFETY IN AVIATION" by Joseph M. Chase, and in 1994 an in depth publication titled "FLIGHT SAFETY DIGEST - BOGUS PARTS - DETECTING THE HIDDEN THREAT" an editorial staff report.

The subject of SUP's is therefore not a recent revelation. It has been brought to a higher level of awareness and recognition through the expanded efforts of the Office of Inspector General (OIG) of the Department of Transportation (DOT) and the other government agencies which have been prodded into this matter by these public revelations. The news and television media have further focused the public's attention to these subjects.

This matter is a long over due wake-up call. The potential for a catastrophic accident due to SUP's is growing and it has entered the stage of critical mass due to the continuing deterioration of reliability and quality of the vast quantities of support parts and components in aviation inventories.

The degree that suspected unapproved parts (SUPs) compromise public safety has become an increasing concern and debate among aviation specialists, experts, operators, suppliers and manufacturers. Each of these groups has a self serving interest in their view points and conclusions.

The fact that these SUPs exist is not the debate, but the discord of agreed definitions, quantities and criticality of these parts are the opinions and methods of dealing with the problem.

The first major step is to properly identify and categorize the problem. Each of the participant groups in today's aviation community see this problem as almost non-existent, to the "big one" (accident) happening tomorrow, in relation to SUP parts.

The Associate Administrator of the Federal Aviation Administration (FAA) has stated, "there has never been a U.S. Air Carrier accident caused by an unapproved part." The FAA substantiates this by the National Transportation Safety Boards (NTSB) aircraft accident investigation reports.

Safety margins that are engineered and designed into United States type certificated aircraft are greatly reduced by the vast quantities of Unapproved Parts (SUP's).

As the aging fleet continues to fly, with factory new parts for these aircraft often not available on a timely or economic basis, parting out of non-flyable aircraft becomes the primary source of parts support. For many years unregulated companies have removed parts without supervision and control by the FAA.

In some cases the parts have then been sent to regulated FAA repair facilities, many of which meet and abide by the required standards of the Federal Aviation Regulations (FAR's). However, as proven on a number of occasions, some of these regulated facilities fail to meet the minimum required standards of the FAR's.

More blatant examples are the companies which are unregulated that use non-conforming procedures for repair and assembly of components. These companies exist throughout most of the United States and abroad.

The level of risk in SUP's is related to the individual definition and source of the specific component, part, assembly and its use. Even a seemingly benign fastener, bolt or nut, which is considered an expendable and non- critical part can, under specific circumstances, become a part of the causal chain of events leading up to a catastrophic accident. Therefore the depth of understanding and effort in diminishing the SUP's needs to be recognized and applied across the board to all aircraft parts, components and assemblies, not just to critical parts.

As an example, when an aircraft starter is received at an airline for incoming inspection procedure, the starter is usually not subjected to an airline shop bench test. It is also not disassembled to inspect all of the internal component parts. A simple incorrect internal screw can be the making of a failed starter which might disintegrate and/or catch fire.

This example is why the FAA's attitude that the user is responsible for the airworthiness of a part fails to be adequate. The end user relies primarily on the accompanying documentation and certifications. If the exterior of the part or assembly shows an obvious defect or other questionable condition, only then is the part apt to be subjected to closer scrutiny.

This large gap between regulated piece parts, components, and assemblies of original equipment manufacturers (OEM's) are all suppose to be regulated in one form or another by the FAA's manufacturing approval process.

However the large gap is in the unregulated vendor, supplier and broker of these millions of individual piece parts, assemblies, etc.

The exposing of the magnitude of the problem opens up the FAA to major problems for criticism and liability for being derelict in their duty of enforcing their own regulations for the past thirty plus years.

The airlines, manufacturers, OEM's and distributors each have major concerns of liability and economic exposures. Scrapping of vast inventories, escalated costs of parts for maintenance, and the shear size of the problem and how to tackle it are all controlling the timely resolution of the SUP's problem.

There are numerous examples of the investigations, indictments and prosecutions by the Department of Transportation - Office of Inspector General (DOT-OIG), the Department of Defense (DOD-OIG) and their Defense Criminal Investigative Service (DCIS), the Federal Bureau of Investigation (FBI), the Federal and State prosecutors, and the FAA.

To understand the safety risk the first requirement is to establish an educated measure of the number of individual parts in the aviation inventories that are SUP's. Then apply the difficult task for each of the categories of parts to the specific applications of either "critical", "essential", or "non-essential".

If a part is in a critical installation the factor of risk is obviously higher. However, a part which is in an essential or non-essential position, though a lower risk factor, can still be contributory to a causal chain of effect which elevates to critical and/or catastrophic condition.

Most aircraft flying today have some form of SUP's installed. Some of these are in the form of original equipment manufacturer's (OEM's) sub-vendor manufacturers overruns which might or might not be potentially airworthy but they lack the final incoming inspection of an FAA accepted parts approval procedure of inspection to make the part a legal airworthy part. The overrun "reject" parts are clearly not potentially airworthy because of specific reasons of reject.

The parts that have been re-worked as either manufacturer's rejects, military surplus (DOD), industry excess materials both aviation and other sources, scrapped for rejected deficiency or beyond economical repair (BER), each represent a definable increase in potential failure rates.

The re-plating, re-sizing, re-threading, welding, and numerous other methods of re-work can have negative impact on margins of air safety. These types of parts are often supplied with false documentation of traceability and testing.

The FAA has confused the approved parts issue by "re-codifying" incidents as "improper maintenance" instead of directing attention to specific parts. A percentage of unapproved parts are classified as such due to a lack of appropriate documentation. However, any parts without traceability should be suspect even under the best of circumstances. Why do these parts lack documentation? The installation of unapproved parts suggests "improper maintenance" on it's face since FAR specifically require the use of FAA approved parts. 14 CFR 43.13 clearly requires the use of current maintenance manuals with the result of part replacement "equal to the original; or properly altered condition." To do otherwise would be a violation. There is substantial case law to validate this argument and the FAA agrees with it according to the interpretative and guidance literature.

The expression "unapproved" parts is really a misnomer for this situation. The word "unairworthy" should be officially substituted for unapproved because any part that has no evidence of approval is, by definition, unairworthy. FAR 43.13(b) specifically requires that all parts installed on a type certificated aircraft be "airworthy". Airworthiness is defined at 14 CFR 21.183 as being "in condition for safe operation and in conformance with [FAA approved] type design." Type design is defined at 14 CFR 21.31 and it includes all of the data necessary to define the part such as drawings, specifications, dimensions, processes and the like. Therefore, without evidence that a parts meets type design and is safe for use, it is unairworthy, not just unapproved. In fact, it is a violation of the FAR to operate a product, defined at 14 CFR 21.1, that is unairworthy. The only legal way to operate an unairworthy aircraft is by ferry permit.

The real threat lies with the documented parts that are clearly defective and non-conforming! These are the parts that are trafficked in daily that pose the most serious threat. There are numerous examples:

1. Parts illegally fabricated by repair stations as part of a repair process for which they lack approved data. Repair stations have been discovered in numerous audits to be manufacturing such parts in violation of FAR's. The FAA

continues to classify these parts as "improper maintenance" because it is a part of a repair process and not parts manufacturing. The repair stations properly document the repair in accordance with 14 CFR 145 and nobody is the wiser until the part fails. Repairs of this type include the use of substitute materials of lessor cost than the proper materials such as the use of standard MS and NAS o'rings in flight control hydraulic actuators instead of the costly proprietary Teflon seals.

When the unit fails because of the use of the wrong part, the FAA classifies it as improper maintenance instead of the installation of an unairworthy part. The FAA maintains that the MS and NAS o'ring, by itself, is FAA approved for other installations thereby precluding it from being classified as "unapproved", notwithstanding the fact that the part was unapproved for the specific installation. If the repair station installed it by accident it would be improper maintenance. If the repair station installed it purposefully to save money or because of a lack of availability of the proper part it would be an "unapproved" part that failed. In either case the part was unairworthy for the intended use. If the wrong part use also lacked traceability it would reflect a systemic failure as well.

2. U.S. air carriers frequently accept unapproved parts through a lack of awareness and training. These parts are then potentially trafficked between air carriers thus contaminating the system. The mechanism exists to alert air carriers to some of these problems, at NO COSTS, in the Government-Industry Data Exchange Program (GIDEP) operated by the Navy. The only current air carrier member of GIDEP appears to be America West Airlines. GIDEP is an on-line database with industry input of suppliers of defective materials. The FAA has been a GIDEP member for many years but, in the past ten years, has only apparently contributed one (1) Safety Alert Notice regarding a supplier of defective parts. This in spite of the fact that it is probably the best source of safety notification in the United States today. If the air carriers were required to be GIDEP members, and the FAA were required to issue notification of suspected unapproved parts suppliers, it is possible that this problem would greatly diminish because the unscrupulous suppliers would risk public exposure.

The Federal Aviation Regulations are very clear in the requirements to have parts approved and to install only approved and airworthy parts. The approval process defined in 14CFR 21.305 is designed to offer reasonable assurance that materials will be airworthy, at least when new. FAR 43.13(b) however, specifically makes the person installing the part solely responsible for the airworthiness of the part, whether new or used. AS the FAA has repeatedly admonished, "the part only has to be airworthy at the time of installation." This means that the installing mechanic is responsible as the last bastion of defense! In fact, it has been mechanics at the airlines who have discovered unairworthy parts AFTER they have been inspected and stocked by the air carrier's Inspection Department. In such cases, what credibility do we give to these airline receiving inspectors? The system has obviously failed in those cases. In fact, there is NO FAA mandated training whatsoever required to be given to aircraft mechanics in parts inspection. Not one single FAA-approved FAR 147 school even offers such training, mandated or not! Appendix A of FAR 147 does not even list such a curriculum. In fact, MANY FAA publications, including the FAR, admonishes mechanics that they are required to adhere to the manufacturer's maintenance manuals, of the current revision, or other data "acceptable to the [FAA] Administrator". [Ref. 14 CFR 43.13(a)] states the substitution of material is classified as a "major" repair in FAR 43, Appendix A(b)(1)(XXI) which requires specific FAA approved data. Again, the rules exist, have always existed, and are quite clear. They are just often not followed and not enforced.

The biggest safety risk comes from defective parts, not undocumented parts. The lack of documentation is an indicator only of a potential problem that requires further investigation. Defective parts are "unapproved" because they are definitely unairworthy. Defective parts can be the results of the manufacturing process OR the maintenance process regardless of whether the process was "improper" or not. The semantical arguments put forth by the FAA do nothing to solve or diminish the problem, only to confuse and obfuscate it. The FAA seems to be more concerned about how they are perceived rather than how they can solve the problem.

The unairworthy parts problem can be remedied fairly simply when viewed appropriately. It is a situation of economics. Like the undocumented worker problem, if legitimate sanctions against employers were carried out, there would be nowhere for undocumented workers to find employment. The problem would go away because undocumented workers would go away. If there were legitimate and SWIFT penalties for using unairworthy parts, especially by the regulated segment of the aviation industry such as airlines and FAA repair facilities, manufacturers etc., the existing stock could not be sold! Further, the message would get out quickly that parts produced MUST meet specifications!

For those individuals and companies that insist on counterfeiting parts and/or documentation the criminal codes should be changed to reflect stiff minimum guidelines of sentencing with much higher consequences of fines and imprisonment terms.

The awareness and concern of the degradation of the aviation industries inventory of support assemblies, components and parts must be recognized and dealt with on a more urgent basis. To be reactive as the FAA has been for many years, and to await an identifiable body count before taking action in urgently prioritizing the SUP's problem, is to be as criminally wrong as those who manufacture the parts illegally.

The problem is vast, complicated and costly. To take preventive measures now we will further limit the future losses of life and property. There will be a much higher burden in cost and lives by all concerned if we continue to wait for the "big one" and then react after the fact.

cohenws2.wps faxed 19:00 22may85

GAMA

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Statement by Edward W. Stimpson
President, General Aviation Manufacturers Association
before the
Senate Governmental Affairs Subcommittee on
Oversight on Government Management and the District of Columbia
May 24, 1995

The General Aviation Manufacturers Association is pleased that your committee is addressing the issue of unapproved aircraft parts, which has affected the manufacturers of aircraft and component parts for decades. GAMA represents legitimate manufacturers who closely follow Federal Aviation Regulations. Our member companies design and receive FAA certification for aircraft products and replacement parts. They create the original products (i.e. engines, propellers, airplanes, and many forms of specialized equipment) and meet the most stringent design and production standards imposed by the FAA.

Companies and individuals that deal in unapproved or bogus parts, who do not follow the FAA rules, make it extremely difficult for the flying public to have full confidence in the aviation industry, and in turn, harm those manufacturers who adhere to the safety rules. Original product manufacturers and the flying public are negatively affected when those who don't follow the same rules enjoy the privilege of competing directly with legitimate manufacturers in the sale and distribution of spare and modification parts.

NO PLANE NO GAIN

The question arises, is there a safety problem in U.S. aviation today due to the widespread proliferation of unapproved parts? We believe that, while this issue deserves congressional scrutiny, it does not present a widespread safety problem at this time.

GAMA, therefore, urges the FAA to impose a higher level of surveillance to detect unapproved parts, and a greater level of FAA oversight on the design, manufacturing and inspection approval of spare and modification parts in the aftermarket.

One of the fundamental problems with unapproved parts is that those who are determined to circumvent the system can readily do so. Those who manufacture and distribute unapproved parts go to great lengths to duplicate materials, part numbers and serial numbers, resulting in indistinguishable copies of approved parts. There are many unapproved parts in inventories across the country, and our goal is to resolve this issue.

Whether unapproved parts are made overseas or in the U.S., if they fail, the name and reputation of the creator of the original product is tarnished. When someone buys a part from a third party instead of the original manufacturer, that part may not be designed, engineered or tested to the same standards employed by the original manufacturer. Furthermore, it is virtually impossible to identify an unapproved part manufacturer for fault in liability cases. This leaves the aircraft manufacturer more vulnerable to lawsuits.

And although most unapproved parts do not pose an immediate safety risk, there is a potential safety risk from parts acquired through military surplus, bankruptcy sales, and inadequate mutilation of unsalvageable parts from accidents. Each of these sources can introduce unapproved parts into the aviation system. Problems arise because once unapproved parts enter the system, they are untrackable and are not covered by the FAA PMA system.

We acknowledge that the massive number of unapproved parts in the system presents a problem of major concern to the FAA, as they do not have adequate resources and staff to control this matter. There are fewer than 100 FAA quality control inspectors who are responsible for the entire manufacturing industry. If we are to even begin to clean up the system, inspection and surveillance by the FAA must be increased dramatically. The FAA must expand its efforts to identify dealers of unapproved parts. It is imperative that there be better control of parts sourcing on the part of the FAA.

One of the most frustrating aspects of the unapproved parts problem is the lack of teeth in enforcement efforts. The Department of Justice must impose tough penalties for fraud and falsification of parts. Also, legislation should be introduced to allow the Justice Department to criminally prosecute those who willfully falsify parts or documentation.

GAMA has assisted the FAA in developing new systems to identify and track unapproved parts, including some form of distributor oversight. We have also helped the FAA work with the Department of Defense to stem the flow of military surplus parts into the system.

However, GAMA looks to Congress to foster greater levels of FAA oversight on the design, manufacturing, and inspection approval of spare and modification parts in the aftermarket, and to impose increased criminal penalties for fraud. At the same time, Congress should carefully consider the consequences of whatever action it takes that would impact the vast majority of the industry which is dedicated to doing a responsible job for aviation safety.

We would be pleased to work with the Committee in reaching sensible solutions.

PROFESSIONAL AIRWAYS SYSTEMS SPECIALISTS

FOUNDED 1977

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STATEMENT OF THE PROFESSIONAL AIRWAYS SYSTEMS SPECIALISTS (PASS)

FOR SUBMISSION TO THE WRITTEN RECORD

MAY 24, 1995

District No. 6—PASS/NMEBA (AFL-CIO)

Mr. Chairman and Members of the Subcommittee:

Since 1977, the Professional Airways Systems Specialists (PASS) has provided exclusive representation for the Federal Aviation Administration's (FAA) Technical and Aviation Systems Specialists. Presently, the PASS bargaining units consist of over 10,000 FAA employees, including: Airway Facilities (AF) employees; Flight Standards Aviation Safety Inspectors and employees (FS); and Office of Aviation Standards employees (AVN). PASS members support and sustain the National Airspace System.

For decades, the FAA has successfully managed the most complex aviation system in the world. A large part of this success can certainly be attributed to our dedicated and skilled PASS members who perform critical safety-related jobs for the Agency. On a daily basis, for example, AF Systems Specialists install, repair, maintain, operate and certify the electronic, electro-mechanical and environmental systems used in air traffic control and national defense. Meanwhile, Flight Standards Aviation Safety Inspectors oversee and inspect every aspect of the commercial and general aviation industry. AVN Specialists maintain the National Airspace System through flight inspection, flight procedures development, flight data collection and navigational systems quality analysis. Certainly, the PASS work force is an integral component of the FAA.

No single issue is more important to PASS than safety. Clearly, the duties that our members perform have a direct impact on the aviation industry and on the reliability, the efficiency and the safety of the air traffic control system and the flying skies. Unfortunately, PASS strongly believes that aviation safety is seriously jeopardized by the FAA's continued failure to identify and to curtail the use of suspected unapproved parts (bogus parts) in our nation's aircraft. The production of unapproved parts is egregious and out of control. Eventually, PASS fears that bogus parts will have a direct adverse impact on operating safety and on the unsuspecting flying public.

To understand the problem of bogus parts fully, one must look at the enforcement and reporting procedures that the FAA currently uses. When a Properly Manufactured Part is determined to be "unsafe" or to have the potential to cause severe personal injury, death or substantial aircraft damage or hull loss, it can be removed from service through the Airworthiness Directive (AD) process. The AD process is utilized to address direct unsafe conditions and was the measure used to resolve the icing problems of the ATR-24 and the ATR-72 aircraft.

Conversely, when a part is found to be a "Suspected Unapproved Part," it must be positively identified and, if the operator declines to remove the part voluntarily, the FAA has no recourse other than to proceed through its own legal system. This process involves extensive review of records and aircraft inspections and is accomplished on a case-by-case basis (even part-by-part basis), one aircraft at a time. In addition, although the FAA has a central database to record unapproved parts, the data does not accurately reflect the quantity of parts involved. Each numbered report is counted as one report despite the fact that it may contain hundreds or thousands of parts.

According to one PASS Aviation Safety Inspector who has dealt with bogus parts for the past three years,

> "there are so many unapproved parts within the aviation system, removing them all immediately, if they could be located, would substantially impact the operational capability of most airlines operating today. However, failing to attempt to locate these components once confirmed (as) unapproved parts, compounds the problem...It is well known that nobody, including the regulatory authorities, has any idea of how many of these parts have been installed on any one aircraft at any point in time. This is worrisome."

Furthermore, the Inspector maintains that the FAA's "having knowledge of these events and taking no action to remove them from service places liability on this agency, should a catastrophic event take place attributed to unapproved parts and personnel injury or loss of life be encountered."

Obviously, the issue of suspected unapproved parts is extremely complex. Yet, there are certain factors which are paramount to the issue and which must now be addressed.

PART SUPPLIERS ARE NOT CERTIFICATED: Because parts suppliers are not certificated, they are therefore unregulated. Although the criminal justice system can extract strong fines and imprisonment on manufacturers of bogus parts and while the FAA can take certificate action or impose civil penalties against manufacturers and mechanics who are not in compliance with Federal Aviation Regulations, there seems to be a gap where current criminal laws or Federal Aviation Regulations are ineffective or not applicable. Thus, unapproved parts have an avenue by which to enter the system.

PARTS MANUFACTURED BY UNCERTIFICATED SUB-CONTRACTORS ARE FINDING THEIR WAY DIRECTLY TO END USERS, INCLUDING AIRLINES: Because of the FAA's reliance on contractors and sub-contractors for aviation parts, a great number of parts are produced without FAA approval or oversight. In fact, in some instances, the substitution of unapproved parts for approved parts is completed without customer or consumer knowledge. Not surprisingly, this substitution can happen quite easily.

For example, a certificated engine manufacturer can contract with a jobber (sub-contractor) to build turbine engine fan blades which are an internal aircraft component. After the jobber meets the contractual requirements, there may be excess components. The jobber then turns to the "after market" to sell the surplus, thus cutting out the middle man and reducing the cost of the parts. Consequently, the surplus parts make their way into the aviation industry's parts inventory without the quality control required of the certificated manufacturer. Moreover, surplus parts, run out parts (parts that have reached their designed time limits), improperly manufactured parts (parts that may not have been properly machined or heat treated), or sub-standard imitations can also be installed on our nation's aircraft.

FAA INSPECTORS ARE NOT ADEQUATELY TRAINED OR SUPPORTED: With regard to unapproved parts, FAA Aviation Inspectors agree that there are three areas for which training is lacking: the identification and understanding of the parts' acquisition process and how it leads to unauthorized parts entering aviation inventory;

the actual identification of bogus parts; and the FAA system used to report bogus parts and to bring about proper enforcement actions, either internally or externally. The FAA continues to fail the current Inspector work force by not providing it with a crucial tool -- training.

The lack of FAA support for field and staff level Inspectors is astounding. As such, Inspectors remain concerned that the FAA's current efforts do not ensure that unauthorized parts are being kept out of the aircraft parts' inventory. One PASS Inspector sums up the problem in this way:

> "My single most pressing concern is that I have yet to find anyone in either industry or the FAA that can answer the following questions: How many unapproved parts are installed on each aircraft? How many of these parts, or what combinations of these parts if installed, does it take to be a significant risk to safety or to cause the loss of an aircraft?"

Given the recent rash of air disasters and the grim predictions of increased accidents due to the rapid growth of air traffic, it is conceivable that enough unapproved parts -- which by themselves may not pose an immediate safety risk -- may be placed upon one aircraft to cause a direct safety risk to the aircraft or to produce a cascading effect, resulting in the loss of life and aircraft hull.

THE FAA'S DEMONSTRATED ATTITUDE IS UNACCEPTABLE: For years, the FAA has allowed certificated repair stations and mechanics to use "alternative methods" for determining the airworthiness of a part or a repair. This policy encourages the aviation industry to purchase components from a source other than a certificated manufacturer, thus bypassing costly quality controls. It also allows mechanics and repair stations to manufacture their own smaller and less complicated parts.

Because there are so many "gray areas" in FAA regulations and current internal policies, it is difficult for anyone to determine what is legal and what is not. In fact, there isn't even a prohibition against bringing parts from a totally destroyed aircraft back into use although there may be no record of their serviceability or history. A perfect example of the FAA's confusion is its own aircraft facility in Oklahoma City. As we understand, an investigation by the Inspector General has revealed that over

40% of the part inventory at this facility could not be properly tracked, and therefore, the point of origin and/or authenticity of the parts could not be determined.

Finally, PASS has found that the FAA rarely supports its written policies through its actions. Under FAA Order 8120.10, Inspectors are charged with certain responsibilities and with following FAA regulations on unapproved parts. The Order dictates identification criteria, reporting and classification requirements, investigation responsibilities and enforcement guidelines.

Yet, the Agency rarely follows its own Order or takes corrective action to remedy identified problems or to stop the production of these parts. In some instances, there have been significant attempts by the FAA to delay the process, to mitigate the findings, to impeach Safety Inspectors who conduct investigations on bogus parts, or to cover up such investigations. Two cases have just recently been turned over to the Office of the Inspector General; these cases are over two years old.

THE FAA MISUSES ITS INSPECTOR RESOURCES: Can the Flight Standards organization properly oversee the aviation industry given its current staff? Today, there is a dramatic disparity between the number of Flight Standards Aviation Safety Inspectors and the number of clerical employees who support these Inspectors. In fact, Flight Standards is short nearly 200 clerical employees. As a result, rather than conducting safety inspections -- and hence identifying bogus parts -- Inspectors spend at least 25% of their time typing letters and reports, answering telephones and filing paperwork. Although PASS has testified repeatedly about this problem, the FAA has done little to alleviate the Inspectors' work load.

SELF REGULATION DOES NOT SOLVE THE PROBLEM: Self regulation is the FAA's way of circumventing the issue of insufficient Flight Standards staffing. As long as the Agency can turn safety inspections and certification efforts over to industry it will always have the right number of employees. It seems almost ironic that the FAA wants to turn over much of Flight Standard's "safety-related" work to those who would be negatively impacted by findings of non-compliance and unapproved parts.

PASS firmly believes that self regulation assumes too much, especially in the competitive market place. All one has to do is to look at the concept of self regulation proposed for the aviation industry and to compare it to the Savings and Loan crisis of a few years ago. The history of that debacle, including the public bailout and the loss of confidence in government, surely needs no further discussion. "Do we want the fox guarding the chicken house?"

Clearly, the production of unapproved parts is widespread and dangerous. PASS is deeply concerned that the FAA and Congress are not doing enough to address and to remedy the problem of unapproved parts. While we recognize that there will always be risk in flying, we also know that things must change -- both in regulatory and industry compliance -- if we are ever to meet the goal of "Zero Accidents." Although this nation has a well regarded safety record when compared to the rest of the world, common indicators show that there are daily occurrences of in-flight shutdowns due to failure of parts, among other causes.

Until the penalty for the use of unapproved parts is greater than the cost of using them, it will be meaningless to attempt to punish the Air Carriers who purchase these parts -- sometimes unknowingly and sometimes with full knowledge due to reduced costs. Finally, PASS firmly maintains that without major policy change, adequate Inspector training and the proper allocation of Inspector resources, the proliferation of unapproved parts in aircraft will continue, and the safety of the flying skies and the flying public will be in jeopardy.

Helicopter
Association
International

STATEMENT OF FRANK L. JENSEN, JR., PRESIDENT
OF THE

HELICOPTER ASSOCIATION INTERNATIONAL

FOR SUBMISSION TO THE WRITTEN RECORD
BEFORE THE
COMMITTEE ON GOVERNMENTAL AFFAIRS
SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT
MANAGEMENT AND THE DISTRICT OF COLUMBIA

ON SUSPECTED UNAPPROVED PARTS IN AVIATION

MAY 24, 1995

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The Helicopter Association International (HAI) is the professional trade association of the civilian helicopter industry. The HAI represents more than 1,300 member organizations, which operate, manufacture or otherwise support civil helicopters. HAI's members operate 4,000 rotorcraft, safely flying more than 2,000,000 hours each year. HAI is dedicated to the advancement of the civil helicopter industry.

Virtually every level of HAI's diverse membership shares the concern that suspected unapproved parts have infiltrated the industry to such a degree that proactive and effective methods need to be implemented now in order to prevent this problem from becoming so rampant that the high level of safety that the industry has worked hard to achieve is compromised. Only then will the FAA help to solidify its zero-accident tolerance level.

The following paragraphs are in answer to the Subcommittee's request for our comments on five broad subject categories dealing with suspected unapproved parts:

The degree that suspected unapproved parts compromise public safety:

According to National Transportation Safety Board (NTSB) data there have been no documented cases in the United States in which unapproved parts were found to be a cause of, or contributing factor to, commercial aircraft accidents. Yet, with so many unapproved parts entering the system, vigilance must be heightened on behalf of the Federal Aviation Administration, as well as those in the industry, to help identify and purge inventories of such stock before that record is tainted.[1]

There is evidence, supported by reports from the NTSB, that unapproved parts have been linked to several incidents in the aviation industry. The fact that unapproved parts have infiltrated the parts distribution network, with a resulting causal relationship between incidents and the installment of unapproved parts, indicates a pervasive problem warranting further action, control and oversight by the FAA.

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[1] Before the April 23, 1995, effective date of Public Law 103-411, the NTSB did not have accident investigation authority over "public use" aircraft. There are over 5,000 public use aircraft that are, by definition, operated by federal, state and local governments. While public aircraft are probably no more or less affected by unapproved parts than private and commercial aircraft, it is impossible to determine whether or not any of the aircraft accidents, in this category, over the past years, have been attributed to the use of such parts.

While HAI has been told that the Subcommittee will attempt to hold another hearing on the Department of Defense's (DOD) disposal of helicopters and spare parts, it is appropriate to briefly state at this point that the disposal of this matériel may also compromise the public safety. Unapproved parts are interspersed throughout DOD surplus inventory as well, and these parts do eventually move into helicopters used in private sector, commercial applications.

The FAA has stated that "...parts classified as 'scrap' under present DOD policy are entering into the civil aviation market and are being illegally installed on civil aircraft." Further, "the FAA attribute(s) surplus military parts as the largest growing segment of unapproved parts in circulation."[2]

HAI commends the FAA and the DOD for the cooperative development of the Flight Safety Critical Aircraft Parts Process Action Team (PAT) to address this problem. One of the missions of the team is to define a process to ensure that parts lacking documentation, proper configuration, or lack of serviceability are identified and mutilated prior to disposal. While this may adequately address this issue in the future, there are no recommendations for the tens of thousands of undocumented parts, disposed of through DOD, that are presently in the system. Furthermore, considering the PAT is only in the development stages, suspected unapproved parts will continue to stream into the private sector for months and possibly years to come before strict processes are in place to effectively address the issue.

The actions that have been taken by HAI and/or members of HAI to identify and reduce the number of SUPs in aviation inventories:

HAI along with other aviation associations have had a very active role in the suspected unapproved parts (SUPs) issue through the FAA's Aviation Rulemaking Advisory Council (ARAC) process and the newly formed Suspected Unapproved Parts Steering Committee. This committee is a central focus point for identifying any proposed changes to the unapproved parts program.

Proper recordkeeping is a key element of tracking and eliminating suspected unapproved parts. HAI has taken the lead to develop procedures and to train the rotorcraft industry to do a better job of recordkeeping. The Association regularly sponsors Maintenance Forums and Manufacturer Technical Briefing Sessions to bring maintenance technicians up to date on the latest trends.

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[2] July 27, 1994 letter to Mr. Jeffrey A. Jones, Assistant Deputy Under Secretary of Defense (Logistics), signed by Anthony J. Broderick, FAA Associate Administrator for Regulation and Certification.

Additionally, the HAI is placing a major focus on the Maintenance Malfunction Information Reporting (MMIR) System that we have developed, with a grant from the FAA, as a tool for maintenance technicians to be able to track repairs and parts. HAI believes this system will fulfill the needs of the civil aviation industry for collection, retrieval, and timely dissemination of data on the performance of airframes, components and repair and replacement parts. In addition, MMIR users can query the service to see if problems of a similar nature have been reported by other operators. While this system was not designed specifically to track unapproved parts, it helps to provide a case history database; in a sense an electronic paper trail, in a format acceptable to most Original Equipment Manufacturers (OEM) and their warranty service systems.

Finally, the HAI Maintenance Technical Committee has developed a Parts Purchasing Checklist for our member operators (see attachment 1). The checklist should be utilized as minimum guidance for all operators when considering the purchase of any aircraft part from any vendor, regardless of the approval process, to help reduce the chance of unapproved parts entering into the system.

The adequacy of the FAA's inspection program, and investigative and enforcement actions related to SUPs:

There is agreement from a wide cross-section of the industry, ranging from the Department of Transportation's Inspector General to FAA personnel, that FAA Aviation Inspectors are not uniformly trained to effectively identify unapproved parts and lack the proper understanding of existing FAA procedures to bring enforcement actions upon brokers who sell unapproved parts. The obvious answer to this shortcoming is to effectively train FAA personnel in the acquisition process and the identification of unapproved parts.

In addition, while the FAA has the authority to take certificate/enforcement action against manufacturers and mechanics, the unregulated nature of parts suppliers leaves a void in the continuity of enforcement. The onus then lies with the Department of Justice to bring criminal proceedings against suppliers who participate in illegal activities.

The merits of either regulating or accrediting parts brokers:

One of the recommendations of the Parts Approval Action Team Phase III Working Group is for the FAA to adopt a policy to certificate distributors and suppliers. While the FAA has balked at this suggestion and advocated an alternative in the form of an accreditation process, HAI believes that regulating parts brokers is an avenue which is more stringent, providing a higher level of oversight, and a more effective way to reduce the chances of the introduction of bogus or unapproved parts into the system.

Any recommendations for improving management and oversight of SUPs:

HAI offers the following recommendations for improving the management and oversight of SUPs:

- The FAA needs to re-establish its Approved Parts Seminars. These seminars were cancelled May 1, 1995. Industry will try to continue this training; however, the FAA has the responsibility of maintaining aviation safety. These courses are valuable tools in training maintenance technicians in spotting SUPs.

- HAI concurs with the consensus of the 1994 International Maintenance Symposium whereupon it was agreed that the FAA needs to develop a comprehensive database of current FAA production approval holders and accredited distributors.

- More focus needs to be placed on the tracking of SUPs. This needs to be done right at the source (manufacturer). New technology warrants the marking of parts through many different means ((i.e. bar coding or the Aircraft Parts Authentication and Tracking System (APATS) method)). This would make it easier to track parts and would also allow aviation maintenance technicians to validate the authenticity of a part. Additionally, current FARs are not consistently interpreted to accommodate electronic recordkeeping, and definitions are too variable for use in electronic media for recordkeeping. Consideration should be given to addressing these issues through the ARAC process. Finally, with the advent of widespread use of Internet, the FAA needs to disseminate SUP reports through such electronic media as the FAA Bulletin Board. HAI concurs with one of the recommendations of the Airline Suppliers Association (ASA), calling for the development of a "PMA database with up-to-date information to provide a tool to identify PMA parts and reduce the market for unapproved parts."

- HAI believes the Subcommittee could play a constructive role in accelerating the implementation of the proposals developed by the FAA/DOD Flight Safety Critical Aircraft Parts Process Action Team.

- The FAA needs to fully support the recommendations of the Parts

Approval Action Team Phase III Working Group and release the advisory circular that the group developed. This would include the regulation of parts brokers and suppliers.

- The FAA must vigorously enforce existing rules and regulations. The FAA has regulatory authority over nearly all the facets involved in the parts issue. Yet they sorely lack any specific jurisdiction over distributors.

- There is a general consensus within the industry that the FAA should require approved parts to be identified through the use of an FAA form 8130-3 tag.

The Helicopter Association International wishes to thank the members of the Subcommittee for their review of the suspected unapproved parts problem. Please consider HAI, and its maintenance related committees, as a resource in any further investigation into this issue.

Attachment 1

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PARTS PURCHASING CHECKLIST

The HAI is thoroughly committed to the objective of eliminating unapproved and bogus or counterfeit aircraft parts from the aviation industry. The HAI will continue, through the ARAC, the Approved Parts Task Force, and the HAI Maintenance Technical Committee, to pursue this objective. The Maintenance Malfunction Information Reporting (MMIR) System and the Maintenance Update are examples of the efforts of HAI to help eliminate this problem. HAI also supports the Federal Aviation Administration's approach to the problem through the Approved Parts Seminars and the use of Advisory Circular (AC) 21-29a, "Detecting and Reporting Suspected Unapproved Parts" within the industry.

With additional sources of parts becoming available, it is critical that operators know their supplier. HAI's Maintenance Technical Committee recommends the following checklist be utilized as minimum guidance for all operators when considering the purchase of any aircraft part from any vendor, regardless of the approval process:

1. Require the company to provide information on liability insurance policies, warranty programs, and service and product support options. It may be prudent and appropriate to examine the producing organizations' capabilities, policies, records, and technical documentation before purchasing any parts.

2. Require the vendor you are purchasing a part from to provide the appropriate written FAA approval for each part to be purchased. Require the supplier to certify, in writing that the part was produced in accordance with Part 21 and is in an airworthy condition. Also require in writing, the model designations of the aircraft the part is eligible to be installed on.

3. Ask about the approved manual required for the part. The manual should be available for review.

4. Consider an on-site review of the facility. Review the company's quality manual and their quality assurance process, particularly where outside vendors are utilized.

5. Insure that all parts are marked in accordance with the applicable FAR.

6. Determine the requirements for continued airworthiness and examine these procedures.

7. Ask for the names of other operators who have purchased the same or similar parts, and then contact those operators to determine their opinion of the quality of the parts.

FAA RESPONSE TO QUESTIONS FROM SENATOR COHEN

QUESTION 1a. You testified that the FAA has received about 1,100 reports of suspected unapproved parts since 1989. However, the FAA's database shows that 1,294 cases have been received.

ANSWER. Subsequent to the issuance of FAA Order 8120.10, Suspected Unapproved Part Program, a decision was made to consider any case opened prior to September 28, 1993, and remaining open as of that date, as a "pre-order" SUP case. These pre-order cases were most likely pursued with non-standardized methods. Information (data) from those case files was non-standardized, sketchy, and sometimes incomplete.

It was determined that all 1994 cases would benefit from standardized data collection by methods outlined in Order 8120.10. Therefore, those pre-order SUP cases that remained open after September 28, 1993, were "rolled over" to new 1994 SUP case numbers, in hopes of establishing a data base with a larger amount of standardized data, with investigations continuing. This resulted in a double-counting of the rolled-over cases.

Attachment 1 provides two tables that reflect the data for: (1) the total number of SUP cases; and (2) the total number of roll-over cases.

QUESTION 1c. In a written response to the Subcommittee's information request, you stated that statistics were unavailable for accidents where bogus or unapproved parts were a contributing factor due to difficulties with the coding system of the NTSB. However, as of November 1994, the FAA's own data base showed 597 accidents and incidents and 26 service difficulty reports where bogus parts were listed as a factor.

ANSWER. In the spring of 1994, the FAA converted its Accident and Incident Data System from a mainframe computer to a server on a local area network. This significantly increased the utility of the data base. However, the conversion program was flawed in that it did not read blank fields in the unapproved parts data item but instead read the next field. If that field had a value, the program read it as an unapproved part. The error was corrected in December 1994. However, before the error was discovered and corrected, erroneous data, such as the data referenced in the question above, was disseminated.

QUESTION 2a. What are the goals and objectives of the Suspected Unapproved Parts Program?

ANSWER. Four goals and objectives are outlined below:

To provide an easy and efficient method for reporting SUPs. While the FAA has always had regulations concerning the reporting parts problems, the regulations only applied to certificated individuals and facilities. Under the SUP program, anyone can report a SUP through a simple reporting system. To report a SUP, a person either completes a form or contacts the FAA on a 1-800 hotline number.

To develop an industry awareness of SUPs and eliminate their use through education, enforcement, and new programs. Numerous FAA and industry initiatives are underway to provide guidance on how to detect and prevent the use of unapproved parts. FAA has and will continue to use its enforcement authority to take action when a person violates the regulations. In addition, the industry has been put on notice that aggressive enforcement action will be taken when FAR 21.303, Parts Manufacturer Approval, is violated.

To provide guidance for processing SUP notifications and managing and coordinating SUP investigations. FAA Order 8120.10, Suspected Unapproved Part Program, is designed to aid FAA personnel in investigating SUP reports, identifying and classifying suspected unapproved parts, and taking action to correct the situation resulting in a SUP notification and report.

To develop the guidance necessary to ensure that unapproved parts are eliminated from the civil aviation community. Much of the guidance is accomplished working in partnership with industry through the Aviation Rulemaking Advisory Committee (ARAC) or with other Federal agencies such as the DoD. Examples of initiatives follow.

- Advisory Circular (AC) 20-AIR-DU, Voluntary Industry Distributor/Dealer Accreditation Program, describes a system for the voluntary accreditation of civil aircraft parts distributors/dealers for developing a self accreditation program. This AC was drafted by industry and was published in the *Federal Register* on July 7, 1995, with a 90-day comment period.

- AC 20-62D, Eligibility, Quality, and Identification of Aeronautical Replacement Parts, is intended to provide guidance and information for use in making a determination of quality, eligibility, and traceability of aeronautical replacement parts and materials. This AC was drafted by FAA and industry and was published in the Federal Register on August 4, 1995, with a 60-day comment period.

- A joint FAA/DoD Process Action Team (PAT) was formally chartered in December 1994. The purpose of the PAT was to develop a process for procedures to be used by both the FAA and DoD for addressing surplusing of military surplus parts auctioned by the DoD. The process for procedures will also include FAA accepting eligible military surplus parts into the civil market place for use on type certificated products. A final report and process recommendations were reviewed and accepted by the DoD Deputy Under Secretary of Defense for Logistics and FAA's Associate Administrator for Regulation and Certification on May 7, 1995. The next step will be development of guidance materials for public use in 1997. Current guidance is contained in AC 21-38, Disposition of Unsalvageable Aircraft Parts and Materials, which provides information and guidance to prevent unsalvageable parts and materials from being sold as serviceable parts.

- FAA Order 8130.21, Procedures for Completion and Use of FAA Form 8130-3, Airworthiness Approval Tag, provides procedures for the completion of FAA Form 8130-3 for export approval, identification, and conformity determinations of products and parts. This form also serves as approval for return to service for FAA approved repair stations. Order 8130.21 is in the process of being revised.

QUESTION 2b. Are there established time frames for completing investigations? If so, what are they? Are the timeframes being met?

ANSWER. Typically, safety criticality and complexity determine the length of time necessary to complete a safety investigation.

Investigatory priorities are established initially by the System Surveillance and Analysis Division, within the Aircraft Certification Service, using the criteria in Order 8120.10, Suspected Unapproved Part Program. These priority categories are established only for the purpose of prioritizing the work involved in conducting SUP safety investigations. Order 8120.10 stipulates that Priority Category 1 requires completion of a preliminary safety assessment within 5 days from receipt of notification. Priority Categories 2 through 6 require completion of a preliminary assessment within 30 calendar days from receipt of notification.

Each case and its priority are then provided to the appropriate action office Preliminary safety assessments are made within the timeframes specified by the assigned category. Timeframes for completion of an investigation are not otherwise specified since, after the preliminary safety assessment is made, the inspector will make a safety determination and must combine the SUP workload into his or her normal work functions. Priorities may change on SUP investigations as information is gathered. SUP investigations are one part of the inspector's normal duties and must fit in with other critical and routine safety work.

QUESTION 2c. Are Alerts, Bulletins, or directives issued for each confirmed unapproved parts case? What criteria are used to determine which to issue and what is the industry's obligation to each type of notification?

ANSWER. No. General Aviation Airworthiness Alerts, Flight Standards Information Bulletins (Airworthiness), Service Difficulty Reporting (SDR) Summaries, or Airworthiness Directives are not issued for each confirmed unapproved parts case.

It is important to note that each suspected unapproved part (SUP) investigation is unique. There is no set pattern for SUP investigations; they differ dramatically. For example, some SUP investigations involve one part that is easily removed from service while other investigations may involve a large quantity of the same item. Other SUP investigations may uncover improper documentation or a lack of direct ship authority while others uncover fraudulent activity.

Because of this wide disparity, FAA uses different types of notifications to disseminate SUP information. Depending on the results of a SUP investigation, notification may vary from no formal notification to issuing an Airworthiness Directive (AD). When a notification is issued, it is coordinated among the action office, SUP coordinator, and the appropriate Flight Standards Service or Aircraft Certification Service Offices. Attachment 2 provides a chart showing the type of notification, the criteria used for that determination, and industry's obligation.

QUESTION 2d. Are any types of notices issued for unapproved parts that are categorized as non-safety issues?

ANSWER. Yes. A Flight Standards Bulletin to Order 8300.10, Airworthiness Inspector's Handbook, and an Alert to Advisory Circular (AC) 43-16, General Aviation Airworthiness Alerts, have been issued concerning SUPs that address non-safety issues. The Bulletin was issued to disseminate information on the SUP Program and the Alert was issued concerning the eligibility of imported parts.

QUESTION 2e. What is the FAA's definition of "safety issue"?

ANSWER. Portions of Public Law 103-272, Codification of Certain U.S. Transportation Laws as Title 49, US Code, define the manner in which the FAA utilizes the term *safety*, but there is otherwise not a formal definition prescribed in FAA regulations.

For example, Section 44701 (a) states "The FAA shall promote *safe* flight of civil aircraft in air commerce by prescribing-

(1) minimum standards required in the interest of *safety* for appliances and for the design, material, construction, quality of work, and performance of aircraft, aircraft engines, and propellers;"

* * * * * * *

Safety issues range from significant to minor. For instance, a landing gear safety issue related to strength and fatigue is quite different from a safety issue for floor mats which must meet non-slip criteria. The basic mission of the FAA is to manage that safety risk in a manner that promotes the safe operation of aircraft, relying on its technical and professional expertise to evaluate and develop an appropriate response to the safety ramifications associated with a particular issue.

QUESTION 2f. Is specific training on identifying, reporting and investigating suspected unapproved parts included in the basic aviation safety inspection course?

ANSWER. There is specific SUP training for Airworthiness Inspectors at the FAA Academy in Oklahoma City. After completing indoctrination training, airworthiness inspectors are eligible to attend Course 22601, Airworthiness Inspection, Certification, and Surveillance of Foreign and Domestic Repair Stations. Lesson 9 of this 56-hour course addresses SUP and covers identifying and reporting guidelines. Throughout other courses at the Academy, inspectors are taught surveillance and investigation techniques which can easily be applied to SUP situations.

While specifically developed for industry mechanics and parts installers, the FAA Approved Parts Seminar is also available to inspectors.

In addition to training, SUP coordinators at the regional and headquarters' offices are available to assist inspectors that encounter unusual circumstances during a SUP investigation.

Maintenance inspectors hired by the agency are required to be experienced certificated airframe and powerplant mechanics with at least three years of aircraft maintenance supervisory experience. They come to FAA with the ability to identify approved parts, and their experience with airline or repair stations has exposed them to standard FAA reporting systems such as Malfunction or Defect Reports, Service Difficulty Reporting, and FAR 21-3 reporting requirements.

QUESTION 4. In your written testimony, you described the FAA's "new, enhanced" compliance policy on suppliers. Under this program, what will happen to the unapproved parts that were previously produced and sold?

ANSWER. As stated in the *Federal Register* Notice [4910-13] of February 27,1995, entitled "14 CFR Part 21, Replacement and Modification Parts; Enhanced Enforcement" the FAA is not precluded from taking action to enforce regulations. If the FAA determines that the installation of the part renders the aircraft unairworthy, the FAA will take action on that aircraft. For those parts that are undocumented, the FAA chartered the Parts Approval Action Team (PAAT) Phase III in late 1993 through the Aviation Rulemaking Advisory Committee (ARAC) to develop guidance on how to dispose of undocumented parts and make an airworthiness determination consistent with the current regulations. This guidance is presently in coordination within the FAA and should be published in the *Federal Register* for a 60-day public comment period within the next few months.

QUESTION 7b. FAA inspectors found that; for four cases, suppliers to a Production Approval Holder were shipping parts to customers without direct-ship authority. The inspectors stated, however, that these parts met safety standards. Does this mean that suppliers can violate the regulations as long as the parts meet safety standards?

ANSWER. In all instances where producers are found to be in violation of the regulations, the FAA will strictly administer Federal Aviation Regulation §21.303 and, when appropriate, initiate enforcement proceedings in accordance with FAA Order 2150.3, Compliance and Enforcement Program.

The FAA has determined that not every unapproved part is an unsafe part. In the past, parts have been sold without direct ship authority. Investigations have established that many of these parts were produced on the same assembly line as the parts produced for the PAH and that they conform in the same manner. Therefore, in February of 1995, the FAA issued a Notice in the Federal Register, 60 Fed. Reg. 10480 (1995), clarifying not only the requirements of FAR § 21.303, but also the persons to whom it applied. This Notice announced the FAA's intention to enforce full compliance of the Section 21.303 of the Federal Aviation Regulations concerning the production of modification or replacement parts for sale for installation on type certificated products. The Notice provided a 90-day window, that expired May 30, 1995, during which suppliers producing and selling replacement parts, without either Parts Manufacturer Approval (PMA) or direct ship authority from the PAH, could apply for a PMA without the information submitted for application being used to initiate enforcement measures. The notice did make the caveat that its provisions did not affect any criminal actions or investigations not within the jurisdiction of the FAA. Nor did the provisions of the Notice impact any of the FAA's ongoing enforcement actions or actions initiated through other means. One hundred-seventy eight producers have submitted preliminary applications for PMA as the result of the Notice.

The FAA subsequently issued internal guidance to our inspectors giving instructions on the processing of applications. With the primary focus being on safety, priority is given to those applicants that are producing the most critical parts.

QUESTION 8. In your written statement, you indicated that the FAA participates in the Government-Industry Data Exchange Program. In the past 10 years, how many alerts has the FAA listed in this exchange program.

ANSWER. As of February 1994, the FAA became a sponsor of the Government Industry Data Exchange Program (GIDEP). The Acquisition Policy and Procedures Division (ASU-100), within the Associate Administrator for Research and Acquisition, is responsible for funding, coordinating, and developing procedures for this program for FAA. ASU uses the GIDEP for parts components and services at facilities when purchasing equipment for the FAA. GIDEP is not used to track suspected unapproved parts, repair stations, or manufacturers regulated by Title 14 of the Code of Federal Regulations. However, these industry alerts are issued as one means of notifying the aviation community of instances of suspected unapproved parts.

GIDEP is just one tool used to disseminate information on suspected unapproved parts. The FAA has taken several other measures to help reduce the potential numbers of unapproved parts in the aviation community such as the SUPs video training and Federal Register Notice. In addition to the GIDEP alerts, numerous enforcement actions, airworthiness alerts, safety alerts, and airworthiness bulletins and directives have been initiated by the FAA.

GIDEP system is a single common network for rapid electronic exchange of failure data and instances of problems among United States and Canadian Government and industry participants. The exchange of information is received by industries and government agencies/offices that elect to monitor the system. The system is managed and funded by the U.S. Government. Among its participating organizations are the Department of Defense, the Department of Labor, FAA, and the Department of Energy.

Industry feedback has indicated that participation in the GIDEP is currently low within the aviation community. Consequently, we are engaging in cooperative efforts with the aviation industry to increase the level of participation.

There have been limited instances where GIDEP has been used in the past as a reporting method for suspected unapproved parts. However, we cannot determine exactly how many times it has been used because the SUPs database does not track GIDEP on an individual basis. We have amended the SUPs database so that it will capture this information.

QUESTION 9. In your written statement, you stated that maintenance personnel are trained to spot unusual conditions of parts and that many of the unapproved parts reported to the FAA have been detected by installers. Please describe the specific training that these mechanics receive relative to spotting unusual conditions of parts and also provide the specific number of suspected unapproved parts that have been reported by installers.

ANSWER. The FAA has developed and presented training to mechanics and parts installers through several initiatives. One of those methods is through the FAA Approved Parts Seminars. This is a formal FAA seminar conducted for the industry and aimed specifically at personnel installing parts. This seminar has been conducted 64 times for FAA and industry personnel both domestically and internationally. The seminar continues to be presented on an "as requested" basis.

Other methods of training include:

- the Suspected Unapproved Parts (SUP) brochure and video tape which has been widely distributed
- SUPs information that is presented to mechanics with Inspection Authorization (IA) during yearly renewal seminars; and
- various union and Industry representative organizations, as well as foreign government airworthiness organizations, provide SUPs training information to their members.

The FAA has also developed and published Advisory Circular (AC) 21-29A, Detecting and Reporting Suspected Unapproved Parts. Information from AC 21-29A has been incorporated into air carrier and repair station training programs. The specific subjects covered during SUPs training are:

- Definitions and Abbreviations
- Certification Procedures for Products and Parts
- Maintenance, Preventive Maintenance, Rebuilding, and Alteration
- A review of relevant Advisory Circulars:

AC 20-36, Index of Articles (Materials, Parts, Processes, and Appliances) Certificated Under the Technical Standard Order System;

AC 20-41, Substitute Technical Standard Order (TSO) Aircraft Equipment;

AC 20-62, Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts;

AC 21-1, Production Certificates;

AC 21-13, Standard Airworthiness Certification of Surplus Military Aircraft and Aircraft Built from Spare and Surplus Parts;

AC 21-20, Supplier Surveillance Procedures;

AC 21-23, Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported to the United States;

AC 21-29, Detecting and Reporting Suspected Unapproved Parts;

AC 21.303-1, Certification Procedures for Products and Parts;

AC 21.303-2, Announcement of Availability: Parts Manufacturer Approvals;

AC 21.431-1, Designated Alteration Station Authorization Procedures; and,

AC 43.9-1, Instructions for Completion of FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance)

- Specific examples and problems are provided which are designed to have the student actually work through a real life-part scenario.

The total number of SUP's submitted by installers is not available in our data base; however, the data base can be sorted by major category. For example, the data base can be sorted by air carrier, owner/pilot/private, repair station, distributor, supplier, etc. Air carriers and repair stations submitted 20% of the SUP notifications in the FAA's data base. Although these two categories do not represent the total number of installers that have reported a SUP, it is reasonable to assume that the majority of reports submitted by these two categories were submitted by installers.

QUESTION 11. The Department of Transportation's Inspector General Testified that the FAA had 39 per cent of unapproved parts in its own inventory. However, Mr. Broderick testified that the FAA had reviewed about $4.2 million of the $6 million worth of inventory questioned and found that about 90 per cent could be used Subsequent to the hearing, the Subcommittee obtained information that showed only 16 per cent could be used. Please provide the Subcommittee supporting documentation for the 90 per cent figure used by Mr. Broderick

ANSWER. Attachment 3 provides a summary of the FAA aircraft parts inventory review -- **Status of OIG/Parts Purge Project as of July 10, 1995**. The FAA Logistics Center provided the OIG with a memorandum concerning the Parts/Inventory Purge Project. The percentages cited by the FAA at the hearing were percentages of the total inventory represented by dollar values rather than percentages of parts themselves. Different percentages result when percentages are calculated based on the number of units in the inventory.

The FAA had $19,083,106 (212,647 units) of serviceable parts in its inventory at the time of the inspection. When the FAA inspected this inventory, we found that $13,046,411 (93,657 units) of serviceable parts were approved without need for further investigation. (These figures represent 68% of the total inventory using dollar values and 44% using number of units.) This initial stage of the review is referred to as the "first pass."

The remaining $6,036,695 (118,990 units) of inventory not accepted during the first pass was reviewed more closely a second time. This review is referred to as the "second pass." Out of the remaining $6,036,695 (118,990 units) of inventory, $4,177,718 (97,865 units) has been reviewed. Of the $4,177,718 (97,865 units) of inventory reviewed during the second pass, $1,649,579 (18,737 units) of inventory was found serviceable and $2,087,464 (37,924 units) could be conformed and returned to the serviceable inventory. Therefore, a total of $3,737,043 (56,661 units) of the $4,177,718 (97,865 units) of inventory reviewed during the second pass was found acceptable. This $3,737,043 of accepted inventory is the 90% referred to in FAA testimony. The 90% is broken down into two categories on the attached inventory sheet: *Serviceable Stock Accepted Second Pass* and *Exchange and Repair Items Moved from Serviceable to Repairable at Second Pass.* I believe that the 16% referenced in your question was calculated by dividing the 18,737 units of *Serviceable Stock Accepted Second Pass*, by the 118,990 units of Serviceable Stock rejected First Pass. This percentage is inconsistent with FAA testimony for two reasons. First, it is based on the number of units, not on the dollar value of the inventory and, second, it ignores the 37,924 units of exchange and repair items.

QUESTION 12. What is the status of draft Advisory Circular 20-DU, Distributor/Dealer Accreditation Program?

ANSWER. A Notice of availability of draft Advisory Circular (AC) 20-AIR-DU, Distributor/Dealer Accreditation Program, was published in the Federal Register, Volume 60, No. 130, on Friday, July 7, 1995. Originally, public comments were to be received on or before August 4, 1995. However, on July 11, 1995, an amended Federal Register Notice was published which extended the public comment period until September 15, 1995. Comments are now under review.

Responses to questions 1b, 2g, 2h, 3, 5, 6, 7a, and 10 are being developed and will be provided shortly.

Attachment 1

TABLE 1. TOTAL NUMBER OF SUP CASES

YEAR	TOTAL NUMBER OF SUP CASES
1989	9
1990	9
1991	52
1992	366
1993	235
1994	276 *
1995	241
TOTAL	**1188 (AS OF 6/16/95)**

TABLE 2. TOTAL NUMBER OF ROLL OVER CASES

YEAR	TOTAL NUMBER OF ROLL OVER CASES
1991	1
1992	47
1993	87
TOTAL	**135**

*411 cases for 1994 (minus 135 roll over cases) = 276 actual cases for 1994

Attachment 2

CRITERIA USED TO DETERMINE TYPE OF SUP NOTIFICATION AND INDUSTRY'S OBLIGATION

8/31/95

TYPE OF NOTIFICATION	CRITERIA FOR DETERMINATION AND WHEN	INDUSTRY'S OBLIGATION
AIRWORTHINESS DIRECTIVE (AD)	(1) Unsafe condition; and (2) Condition is likely to exist or develop in other products of the same type design.	Mandatory requirement (amendment of the Federal Aviation Regulations) levied on the industry to perform a specified action within an identified time period.
GENERAL AVIATION AIRWORTHINESS ALERT, (AC 43-16)	An unapproved part exists in the general aviation aircraft inventory, but the condition does not warrant issuing an AD	Advisory
SERVICE DIFFICULTY REPORTING (SDR) SUMMARIES	An unapproved part exists in the transport aviation aircraft inventory, but the condition does not warrant issuing an AD.	Advisory
FLIGHT STANDARDS INFORMATION BULLETIN (AIRWORTHINESS)	The results of SUP safety investigations are evaluated by the action office and AFS-500 to determine if a bulletin should be develop and published.	Not applicable. (Information for FAA inspectors and sometimes used to disseminate the information to the civil aviation community.)
NONE	Situations such as: Single part; All parts quarantined; Location of all part(s) known; Not an unsafe condition; Source terminated.	Not applicable

NOTE: More than one type of notification may be used to disseminate information on the same SUP.

STATUS OF OIG/PARTS PURGE PROJECT AS OF 7-10-95

Total of FAALC inventory at time of inspection: $39,968,560.00

	Dollars	Units
Serviceable Stock on Hand at time of inspection:	$19,083,106.00	212,647
Serviceable Stock First Pass:	$13,046,411.00	93,657
Serviceable Stock Rejected First Pass:	$ 6,036,695.00	118,990
Serviceable Stock Accepted Second Pass:	$ 1,649,579.00	18,737
Expendable Items Identified for Destruction at end of Second Pass:	$ 440,675.00	41,204
Exchange and Repair Items Moved from Serviceable to Repairable at Second Pass:	$ 2,087,464.00	37,924
Units Action Pending at Second Pass:	$ 1,858,977.00	21,125
Totals:	$ 6,036,695.00	118,990

SUMMARY

Serviceable Stock Accepted(1st, 2nd Pass)	$14,695,990.00	112,394
Reparable (To be repaired)	$ 2,087,464.00	37,924
Pending (Inspection ongoing)	$ 1,858,977.00	21,125
To be Destroyed	$ 440,675.00	41,204
Totals:	$19,083,106.00	212,647

NOTES:
To our knowledge, no counterfeit parts were identified in our review of the inventory.

Responses to questions 1b, 2g, 2h, 3, 6, 7, 7a, and 10.

QUESTION 1b. You testified that the FAA's review of the NTSB's accident data from 1983 to 1992 disclosed 11 cases where a "bogus" part was noted as a contributing factor in general aviation accidents. However, your staff had provided the Subcommittee with information showing 13 accidents and two incidents through 1994. Further, one of the incidents pertained to a major air carrier. In addition, the Subcommittee obtained information from the NTSB about a third incident that was not provided by your staff (copy attached).

ANSWER. The testimony for the hearing was based largely on materials that had been prepared for a report to Congress. That draft report contained NTSB accident/incident data for the years 1983 through 1992. FAA technical staff had analyzed the information contained in the report and reached conclusions about the status of the parts in question.

I do not know why the report you attached to your letter was not included in the information you earlier received from FAA staff. However, the NTSB database has over 70,000 accident and incident reports for the years 1983 through 1994. It is likely that the incident was simply missed when the data was gathered.

The FAA has evaluated the five additional reports which post-date the 1992 data. In four of the five cases, the contributing cause was a maintenance error. Thus, 15 of the 16 reports involve maintenance errors in which a properly manufactured and documented part was erroneously placed on aircraft for which the part was not designed or where maintenance instructions were not followed. One case, report number FTW92DRD01, has been classified by the FAA as an unapproved part which contributed to an accident. This case involved a general aviation agricultural aircraft. The failure of this unapproved part resulted in a fatality. A General Aviation Alert was published in AC 43-16 in September 1993 to alert operators of the aircraft of the problem. An airworthiness directive was not considered necessary because the total lot of parts was segregated. (Attachment 1).

QUESTION 2g. The FAA currently has about 2,600 aviation safety inspectors. How many of these inspectors are dedicated full-time to the suspected unapproved parts program?

ANSWER. The Flight Standards National Field Office (AFS-500), within the Flight Standards Service (AFS) at headquarters, has two full-time aviation safety inspectors assigned to organize and assist in the coordination and investigation of SUPs. Within the Aircraft Certification Service (AIR) at headquarters, one aviation safety inspector is assigned full time to the SUP Program in the Production and Airworthiness Certification Division, AIR-200. We plan to review the results of the task force report before we make further decisions concerning additional positions in AFS-500.

In addition to the AFS headquarters staff, there are nine aviation safety inspectors who serve as Regional SUP Coordinators. Within AIR, there are four directorate SUP Coordinators. These individuals do not devote full-time to the SUP program.

Field Inspectors have a variety of job functions, including SUP investigations. In Flight Standards, inspectors have performed approximately 257 SUP investigations. Throughout the AIR organization, 193 individuals have been identified who have worked on the SUP program in the last 12 months.

QUESTION 2h. What statutory provisions prevent the FAA from performing (or allow the FAA to perform) investigations of non-certified facilities such as brokers and distributors?

ANSWER. Although there is no regulation that specifically requires brokers and distributors to allow the FAA to conduct inspections of their activities or facilities, the FAA does have the statutory authority under 49 U.S.C. 40113 to subpoena witnesses and records related to any matter involved in an investigation. This authority is further set forth in section 13.3 of the Federal Aviation Regulations, which provides that "the Administrator may conduct investigations, hold hearings, issue subpoenas, require the production of relevant documents, records, and property, and take evidence and depositions." Under these statutory and regulatory provisions, the Administrator has the authority to conduct safety-related investigations of non-certificated facilities such as brokers and distributors.

QUESTION 3. Regarding the D&D Air case that was discussed at the hearing by the FBI, was there a suspected unapproved parts report prepared for those parts and was an airworthiness directive issued? If so, please provide copies.

ANSWER. The FAA Los Angeles Manufacturing Inspection District Office (LA-MIDO), within the Aircraft Certification Service (AIR), received information that involved 950 discrete part numbers. This information represented 18 months of D&D sales just prior to the law enforcement raid executed at the company on April 19, 1994. Of those part numbers, 758 were identified as applicable to McDonnell Douglas, Boeing, and Lockheed Aircraft and 192 part numbers were not tied to any aircraft model. Applicable Aircraft Certification

Offices (ACO's) then categorized the part numbers with the following results: 82 part numbers as Category 1; 48 part numbers as Category 2; 628 part numbers as Category 3 and 4.

The LA-MIDO obtained additional D&D files that identified the suppliers of the Category 1 and Category 2 parts to D&D. The names of all SUP suppliers of Category 1 and Category 2 parts were submitted to the System Surveillance & Analysis Division, AIR-300, for further investigation, and SUP reports were prepared. The SUP reports are enclosed. (Attachment 2). SUP report number 94-255 was revised to track and coordinate all other D&D supplier SUPs.

FAA published an alert on the D&D SUPs in the Service Difficulty Report (SDR) Summary, Issue Number 95-17, dated April 23 to April 29, 1995. The alert listed all Category 1 and Category 2 part numbers, including background material and instructions for the handling of discovered unapproved parts. The FAA Transport Airplane Directorate, ANM-100, issued no Airworthiness directives (AD's) relating to SUPs arising from the D&D investigation.

QUESTION 6. You testified that the FAA and the Office of the Inspector General do not always agree on technical matters, such as the findings associated with a recent audit of 14 domestic and foreign repair stations. In discussing this audit, you stated that the FAA found that only 16 per cent of the IG's reported cases of suspected unapproved parts actually involved unapproved parts. However, if we apply this 16 per cent factor to the 26 million parts that are used each year in the aviation industry, one might conclude that there are about 4.2 million unapproved parts in aviation inventories. Would the FAA consider this number of unapproved parts a safety problem?

ANSWER. The total number of unapproved parts alone, without any further analysis, does not provide the information needed to make a credible safety determination. To properly assess the safety problem posed by SUPs, it is necessary to determine why parts are suspect.

For example, in four of the eight cases that comprise the 16 per cent referenced above, the parts were provided by a Production Approval Holder (PAH), a parts manufacturer who supplies parts to the aircraft manufacturer. However, the approval holders in this case did not have the direct ship authority required to send the parts to anyone other than the aircraft manufacturer; therefore, parts shipped directly to repair stations or airlines are considered SUPs. In most cases, FAA would consider this problem a technical violation of the Federal Aviation Regulations, not a critical safety problem. In two of the eight cases referenced above, the part was approved, but it was used incorrectly, i.e., a maintenance problem. These factors, in addition to how critical the part is to the safe operation of an aircraft, must be evaluated to determine the impact of SUPs on aircraft safety.

FAA's review of the three OIG reports on SUPs shows that most SUP cases are related to compliance with FAA production maintenance regulations and procedures, similar to the first four cases in the example above. This situation is a safety concern and FAA has acted to address this concern. We believe that the notice of enforcement to parts manufacturers, training seminars, cooperative efforts with industry such as the industry-run, voluntary accreditation program for parts distributors, and the other initiatives underway are the most effective and efficient methods of attack on this type of SUP violation. Also, FAA's review of the NTSB accident investigation data shows that 15 of the 16 accidents and incidents citing suspected parts as a causal factor (inappropriately referred to as "bogus" parts) are maintenance problems, similar to the second example above. FAA has acted to address this concern by making those installing aircraft parts responsible for using approved parts as well as the correct part for the repair.

QUESTION 7. Regarding the audit report mentioned in the previous question, you also testified that FAA inspectors reviewed 51 of the 64 cases of suspected unapproved parts and verified the integrity of 98 per cent of the parts. Please provide the Subcommittee copies of the inspection methodology and supporting documentation for the FAA's review of the 51 cases.

ANSWER. A copy of the FAA's response to the OIG's audit is attached. Section III, which begins on page 20 of the FAA response, lists each OIG example that the FAA investigated. The supporting documentation for the FAA's review of each case is also attached. The supporting documentation follows the organization of the FAA response. (Attachment 3).

QUESTION 7a. FAA inspectors found that for 11 of the 51 cases, mechanics or repair stations exercised their professional prerogative to substitute similar, equivalent parts in the course of a repair. Is it correct that the Federal Aviation Regulations require that replacement parts must be "equal to" not "similar"? Also, what section of the regulations allows mechanics to use their "professional prerogative"?

ANSWER. Our response is divided into two parts: Part A addresses the issue of replacement parts and Part B addresses the issue of professional prerogative.

PART A

Is it correct that the Federal Aviation Regulations require that replacement parts must be "equal to" not "similar"?

Yes. Section 43.13(b) of the Federal Aviation Regulations states that "Each person maintaining or altering, or performing preventive maintenance shall do that work in such a manner and use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting its airworthiness)."

The FAR requires that each replacement part must be equal to the original part in all matters relating to the airworthiness standard to which it was originally approved. However, an approved replacement part (e.g., brakes, tires, batteries, vacuum pumps, and instruments) can and usually does have small differences in design, dimensions, materials, color, etc., from the original part it replaces. FAA approved replacement parts are not required to be identical to the original part; but, each and every FAA approved replacement part must still meet (be equal to) the certification requirements of the original part.

Civil Aviation maintenance professionals following FAR Section 43.13(b) must rely upon their knowledge, skill, ability, and experience, and must be prepared to substantiate and justify their decisions by reference to approved and acceptable technical publications to make the determination that a repair is at least equal to its original or properly altered condition.

PART B

What section of the regulations allow mechanics to use their "professional prerogative"?

FAR Part 21 identifies who can manufacture replacement parts for civil aircraft. FAR Part 43 describes the quality of parts that must be used in a repair or modification. Other FAR used in maintaining aircraft refer back to FAR Part 43, which in turn relates back to FAR Part 21. When a mechanic or repair station is faced with a repair or modification, they have an option to install a part manufactured by a company holding an FAA approval as described in FAR Part 21. Another option is if the mechanic or repair station has FAA approved data, they are allowed by the FAR to manufacture the part in accordance with the requirements described in FAR Part 43. Additionally, during the course of a repair or modification, the mechanic or repair station may decide to use a part that is equal to or better than the original part. This would also meet the requirements of the FAR and be an option available to the individual performing the repair or modification.

This does not mean a mechanic can exercise his or her "Professional Prerogative" to approve parts from any source," and put them on an aircraft. The mechanic or repair station must stay within the limits defined by the regulations and must be able to show how that determination was made.

QUESTION 10. You testified that FAA and DoD experts are working to define a process to ensure that critical parts lacking documentation, proper configuration, or serviceability are identified and mutilated prior to their disposal by DoD. During questioning, you agreed to provide a position paper on applying this process to civil aviation. Please provide a copy of this paper.

ANSWER. Attached is a copy of Section 6.11 (Salvageable and Scrap Parts) of the recently completed Suspected "Unapproved Parts" Program Plan, which addresses the issue of destroying unsalvageable aircraft parts. (Attachment 4). Although the Task Force did not assess the "potential impacts of mandating destruction of private property in terms of any required legislation or regulatory changes," it nevertheless determined that there were certain types of unsalvageable aircraft parts for which safety interests might dictate mutilation or alteration, despite concerns over private property interests. In Section 1.2 of the report, which outlined a proposed program plan for SUPs, the Task Force noted that:

> The FAA should review measures necessary to ensure that scrap parts are destroyed so that they cannot be returned to aviation use. This may include rulemaking requiring owners of aviation parts who determine that those parts are scrap to destroy the parts prior to disposing of them.

The Task Force also issued a recommendation (Number 22) which states: "The FAA should take necessary steps to ensure that once aviation parts are classified as 'salvageable,' they are properly controlled, and that 'scrap' parts are destroyed to prevent their re-entry into the aviation system." FAA has adopted all of the recommendations of the Task Force.

A key recommendation of the Task Force was to establish a National SUPs Program Office. That office, which will be established within the next several weeks, will be given responsibility for putting in place a program to address and implement all of the Task Force's recommendations, including recommendation Number 22.

QUESTION 5. In 1994, an FAA investigation discovered two parts brokers selling counterfeit helicopter parts. An FAA inspector identified that one of these parts was the type used on the Presidential helicopter, as well as other military helicopters, and recommended warning those responsible for maintaining these aircraft. What action did the FAA take and what was the outcome of this case?

ANSWER. The FAA's Systems Surveillance and Analysis Division (AIR-300) received the SUP report by telephone on April 21, 1994, from an officer of Hartman Electrical Manufacturing, which had been contacted by Fokker. The part in question was an electronic relay marked with a Hartman part number, but which, when taken apart, reflected a label on the inside referring to George Wagner. An FAA inspector from the Cleveland Manufacturing Inspection District Office (MIDO) performed a SUP investigation of the relay on April 28, 1994, at Hartman Electrical Manufacturing and verified that the inspected relays were "bad" and that they failed Fokker's tests (which was the type of aircraft on which the parts had been installed). The inspector also noted to AIR-300 that the type of part in question was used on certain military helicopters, including the Presidential helicopter. On that same date, pursuant to a conference call among AIR-300, Central Region, and Northwest Mountain Region officials, a decision was made to transfer the SUP files to the Long Beach MIDO, since George O Wagner & Associates was located in California. The files were overnighted to the Long Beach MIDO, and the inspection results from Cleveland were forwarded directly to the MIDO as well.

In view of the military use of the type of part being investigated by the FAA, including the use of that type of part on the Presidential helicopter, the Northwest Mountain's Department of the Army Representative to the FAA was contacted by the FAA's Northwest Mountain Region (some time after the April 28, l994, telecon, but before May 6, 1994) and advised of the problem with the relay part. The Army Representative advised that DoD was aware of the problem. The FAA subsequently received a letter from the DoD Inspector General, dated July 28, 1994, advising of a DoD investigation into the parts issue.

FAA's investigation into George O. Wagner & Associates remains open, until certain issues associated with the proper disposition of a parts inventory are resolved. FAA inspectors had interviewed Mr. Wagner in April 1994, and had been provided some information by him; subsequently, however, he was uncooperative. The MIDO, therefore, sought the assistance of the FAA's Office of Civil Aviation Security. In view of Mr. Wagner's failure to cooperate, it was believed that an undercover investigation would be the best approach, and the Wagner case was referred to a SUPs criminal task force. Ultimately, the Assistant U.S. Attorney decided not to bring a criminal case against

Mr. Wagner, and in February 1995, FAA's Office of Civil Aviation Security notified the MIDO that no criminal action would be pursued. In March, the Long Beach MIDO resumed its civil investigation and sent a letter of investigation (LOI) to Mr. Wagner. The LOI was returned unclaimed and unopened. In July 1995, after hand-delivering the LOI, FAA learned that Mr. Wagner had died in May 1995. Through correspondence with his widow, Mrs. Wagner, it appeared that she was in possession of the remaining inventory from her husband's business. In that she failed to respond to subsequent correspondence from the FAA about the inventory, an administrative subpoena has been issued by the FAA to develop further information about the inventory.

The FAA will provide the Subcommittee further details as the investigation proceeds.

AIR TRANSPORT ASSOCIATION

POST HEARING QUESTIONS FROM SENATOR COHEN

(1) In your written statement, you specified that enforcement actions are not pursued in many cases because the rules that are in effect are not strong enough to obtain a judgment. Please explain what you mean by this statement.

The primary problem rests with distributors who are not regulated by the FAA. The only means of addressing distributor misconduct is through the use of civil or criminal court action which can take years to process and typically does not immediately prevent unscrupulous dealers from operating while court action proceeds. ATA has petitioned the FAA to require regulation which would include mandatory registration and a quality assurance program. ATA is concerned that the voluntary registration program which is currently being endorsed by the FAA is just that --voluntary-- and therefore may not be adequate to stop unscrupulous behavior in a timely fashion.

(2) You testified that the situation of suspected unapproved parts is getting better, not worse. If so, how do you explain that for the first half of fiscal year 1995 almost 50 percent of the reported cases of suspected unapproved parts were categorized as either having the potential to cause a catastrophic component failure or directly affect the safety of the aircraft as compared to 24 per cent for these categories over the previous six years?

Within industry there is no indication that there is any increase in the actual number of unapproved parts. However, reported cases of unapproved parts are increasing due to the heightened alertness to the issue and focused quality assurance receiving inspections. It is natural to experience an increase in reports due to the increased sensitivity and awareness of part documentation requirements.

(3) At the hearing, members of your panel were asked a series of questions relating to several issues including mandatory disposal of scrap and mandatory reporting of suspected unapproved parts. On these two specific issues, you testified that FAA advisory material was already in place and was as good as regulations, and there was no need for additional actions. If FAA's advisory material works well, why is the Air Transport Association supportive of regulating parts brokers and distributors?

ATA's petition is meant to address companies which buy and sell all categories of parts and does not specifically address scrap material or the mandatory reporting of suspected unapproved parts. There is no need for additional actions in these specific areas due to the adequate advisory materials that already exist. Scrap sales are a small portion of the total parts business.

POST-HEARING QUESTIONS FROM SENATOR LEVIN

Questions to Department of Transportation Inspector General A. Mary Schiavo

(1) Your testimony at the hearing was confusing as to the definition and use of the terms "bogus" and "counterfeit" aircraft parts. At one point in the hearing you indicated that these two terms were not interchangeable, that the term "bogus" referred to all unapproved parts, and the term "counterfeit" referred to a subcategory of unapproved parts which had some related element of fraud or misrepresentation. At another point in the hearing, however, you indicated that all unapproved parts, regardless of whether an element of fraud or misrepresentation were present, were "counterfeit." These statements are inconsistent. For the record, do you define and use the term "bogus" to mean all unapproved parts? Do you define and use the term "counterfeit" to refer to a subcategory of "bogus" parts for which some element of fraud or misrepresentation must be present? Please note that the following questions use the terms "bogus" and "counterfeit" as suggested in the previous two sentences.

Answer:

The term "bogus" is commonly used by the airline industry and the FAA when referring to suspect and unapproved aircraft parts. The term bogus appears, for example, in various FAA data bases. The NTSB has also used the term bogus in one of its data bases. By definition, bogus means counterfeit. In that respect, the terms are interchangeable.

At the hearing, a chart was provided showing the many forms of bogus parts we have discovered in our investigations. Some of those cases have been prosecuted specifically using a criminal counterfeiting statute. However, an element of that statute involves the actual placement of a counterfeit mark on the part itself. More often, our prosecutions establish that FAA-required certifications or material certifications relating to the parts were falsified, thereby misrepresenting the authenticity of the part and perpetrating the fraud, as opposed to a counterfeit mark misrepresenting the authenticity of the part. In such cases we cannot apply the specific counterfeit statute. In all our investigations for which we seek prosecution, an element of fraud or misrepresentation is present.

(2) On page 27 of your prepared statement, you state: "From our independent investigation, we do know the carriers submitted many more SUP reports to the FAA which are not reflected in FAA records and databases. Their disposition and disposal by the FAA is a mystery. FAA employees have advised us confidentially that some were simply thrown away --with absolutely no action to determine if there was a problem."

2(a) Please indicate the number of carrier-submitted SUP reports, not reflected in FAA records or databases, of which your office is aware. Are these the same SUP reports referred to on page 24 of your statement as follows: "11 of 14 SUP reports submitted by major air carriers ... were not entered into the [SUP] database and not assigned for investigation"? For each of the SUP reports not reflected in the FAA records or databases of which your office is aware, please identify the carrier and parts involved and the approximate date the SUP report was submitted to the FAA. To your knowledge, did any of the carriers retain copies of these SUP reports?

Answer:

During our ongoing audit of the Suspected Unapproved Parts (SUP) Program, we determined that 8 of 11 SUP reports* submitted to FAA by three air carriers (Delta, Federal Express, and TWA) were not included in the SUP data base. These results were obtained while we were conducting an audit objective to determine if SUP reports conveyed to FAA are properly accounted for in the SUP data base. We asked nine major air carriers (American, America West, Continental, Delta, Federal Express, Hawaiian Airlines, Northwest, TWA, and USAir) to provide us any SUP reports submitted to FAA subsequent to October 1, 1993. Six of the nine air carriers responded to our request. From these responses, we determined that three of the six air carriers submitted a total of 11 SUP reports. Each carrier provided us a copy of the SUP reports that had been submitted. We searched the SUP data base and did not find 8 of the 11 SUP reports.

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* This number was originally 11 of 14 SUP reports; however, it was reduced to 8 of 11 SUPs. When we contacted Continental Airlines, we determined Continental never submitted actual SUP reports to FAA for the three SUP issues mentioned in its response to us.

Answer (continued):

In December 1994, we provided copies of the eight SUP reports to FAA's System Surveillance and Analysis Branch (AIR-300) and requested that FAA also search the data base. FAA's search confirmed that these SUP reports were not accounted for in the SUP data base. We recommended FAA input the following eight SUP reports in the SUP data base.

Air Carrier	Part Number	Part Name	Quantity	Date of SUP Report
Delta	D29517-505	Valve	4	11-30-94
	26124-0207	Seal	38	9-27-94
	720752-41	Seal	20	6-20-94
	792139-1	Valve	6	2-07-94
Federal Express	697259	Bearing Gasket	1	12-17-93
	ARG 7153-1	Eye Bolt	2	8-26-94
	NAS6708D52	Bolt	32	8-15-94
TWA	694767	Fuel Nozzle Seal	400	12-22-93

2(b) Please indicate how many FAA employees informed your office that SUP reports had been "thrown away" by FAA. Approximately how many SUP reports were allegedly "thrown away"? For each of these SUP reports, please provide any information, such as who submitted it, the parts involved and the date of submission, which would assist in locating the report or determining its disposition. Did any of the FAA employees who provided this information retain copies of these reports?

2(c) What actions did your office take to locate these SUP reports and determine the extent of any safety problem?

2(d) Please provide any documentation in the possession of your office which would substantiate these allegations, including copies of any of the SUP reports at issue.

Answer:

The allegation that SUP Reports were being thrown away were made by at least three FAA inspectors to our criminal investigators. The inspectors who advised us of these problems were not the employees who threw the reports away, and in providing the information to us indicated that they do not want to be identified. The investigators did not attempt to quantify these or obtain any other information. Rather, they passed the information to senior managers within the OIG. Based on this information, we began an audit of the SUP program. A copy of the announcement letter for the audit is enclosed as Attachment 1.

As part of the audit, we designed tests to elicit information from the airlines concerning their SUP submissions and match this information to the FAA's SUP database. An example of the letters we sent to the airlines is enclosed as Attachment 2.

The results of this test is reflected in my statement quoted in the first part of this question. The audit is still ongoing and is expected to be completed later this year. The SUP reports provided by the airlines in response to our test are enclosed in Attachment 3.

(3) In your hearing testimony, you stated that part maintenance problems reported on Service Difficulty Reporting (SDR) reports go "into a black hole," and requiring maintenance problems to be reported on SDR reports rather than SUP reports "is going to be the end of a major percentage of criminal prosecution on suspected unapproved parts." What prevents your office from reviewing SDR reports to develop criminal prosecutions? If a repair facility uses only approved parts, but installs or repairs them improperly, shouldn't the FAA treat the matter as a maintenance rather than SUP problem?

Answer:

We have attempted to use the SDR database in the past without success. The SDR database was never intended or designed to be a reporting mechanism for SUPs. Our investigators have searched this database on several occasions for known failures of counterfeit components which should have been reported in accordance with the Federal Aviation Regulations (FAR). As of November 16, 1994, only 26 SDRs reflected "bogus" parts had been reported on the SDR database.

The issue of deficiencies in the SDR database is addressed in my written statement on page 25. The issue is also addressed in our April 1994, report (E5-FA-4-009), which is appended to my written statement, entitled, "Responsiveness to Suspected Aircraft Maintenance and Design Problems." In 1991, the GAO also cited problems with the SDR database in a report entitled, "Changes Needed in the FAA's Service Difficulty Reporting Program (RCED-91-24)." The GAO found that the FAA did not use SDR data to identify trends because the data was unreliable. Our findings in 1994, also found the data unreliable.

We do not seek prosecution on normal maintenance problems. Prosecution requires evidence that the work was done knowingly and willfully with the intent to defraud. There are cases where unapproved parts are not always an element in the end product being unapproved. For example, if a certificated facility or individual repairs or overhauls a part reusing approved parts that should have been replaced or repaired in accordance with the required procedures but were not, or does not perform the required testing, the end product is a SUP. In certifying the part has been repaired or overhauled in accordance with the appropriate data and procedures when, in fact, it has not been, fraud has been committed. By falsifying records required by FAA regulations and falsely certifying the part, U.S. criminal codes have been violated. If all maintenance issues as stated above were not initially reported as a SUP issue, who and how would the FAA investigate and/or report the issue?

(4) Is it your office's recommendation, as your prepared statement seems to indicate on page 22, that all standard parts in aircraft part inventories be required to have accompanying documentation identifying the original manufacturer? If so, please provide the following additional information:

Answer:

Our office has always advocated FAA identify those standard parts used in commercial aviation that are for critical applications including modified and remarked standard parts. For those standard parts determined to be used in critical applications, we do recommend accompanying documentation identifying the original manufacturer. This recommendation is supported by FAA's own guidance material. FAA Advisory Circular 20-62C, dated August 26, 1976, states that "an increasing amount of replacement parts (including standard parts), materials, appliances, and instruments are offered for sale as being of aircraft quality when actually the quality and origin of these units are not known." Further, FAA Order 8300.10 states that: "An operator using a part of unknown quality, condition, or origin must be able to prove conclusively that such parts conform to the provisions of FAR Part 43.13." Absent documentation clearly establishing that the subject parts were manufactured in accordance with established industry or U. S. specifications, there is no reasonable assurance standard parts are conforming. Although, standard part manufacturers are not required to be FAA approved, FAA regulations do require standard parts conform to established industry or U.S. specifications.

4(a) Would this documentation requirement be limited to new standard parts or also apply to used standard parts?

Answer:

This documentation recommendation would apply to new and used standard parts used in critical applications including modified and remarked standard parts.

4(b) What is the relationship between this recommendation and the Fastener Quality Act of 1990, Public Law 101-592, which already imposes extensive testing and certification requirements on fasteners sold in the United States in order to endure their conformance with industry and U.S. specifications?

Answer:

FAA uses the term standard parts as a euphemism for many different types of parts used on aircraft (e.g. bearings, tubing, hoses, etc.) that do not function as a fastener. Therefore, the requirements of the Fastener Act would not apply to many uses of standard parts as defined by FAA. The Fastener Act provides for compliance with preset manufacturing specifications. In relation to screws, nuts and bolts, our view is that FAA-approved repair stations be able to substantiate the use of conforming standard parts. The purpose of our recommendation is to ensure reasonable assurance that FAA-approved repair stations provide a trail to the manufacturer to determine compliance with the Fastener Act. For standard parts covered under the provisions of the Fastener Act, we do not envision any supplemental testing only a documented track to the testing data performed as required by the Fastener Act.

4(c) About how many additional pieces of documentation would this proposal require a typical air carrier to maintain each year?

Answer:

We do not have, and are not aware that FAA has, sufficient information to provide a reasonable estimate of the pieces of documentation needed to provide reasonable assurance of standard part conformance to industry standards and specifications. Several factors would affect the number of pieces of documentation required. First, FAA's lack of a clear definition of all the types of parts that fit the broad spectrum of standard parts severely limits the ability to estimate the documentation volume to be expected by air carriers or others in the aviation industry. Second, the volume of documentation is directly proportional to the type of storage and retrieval media used. Documentation can be retained in many different forms (e.g. computer, microfiche) such that several pieces of documentation may not be required as long as there is record of the original manufacturer. Third, the number of parts purchased as a single transaction and the number of purchase transactions would significantly affect documentation volume. Fourth, technology may reduce documentation requirements. Marking of parts with "symbology" (e.g., bar code marking and holograms) would increase the amount of history available on a specific part and reduce the number of documents. In addition, FAA could reduce documentation requirements, improve safety, and use its oversight resources more cost effectively by de-regulating standard parts used in non critical flight applications. We have encouraged FAA to restrict standard part documentation to those used in flight critical applications including modified standard parts remarked with a nonstandard part number.

(5) A Newsweek article from April 24, 1995, states: "Federal prosecutors are reviewing the actions of a high-ranking FAA official who allegedly helped derail a probe into counterfeit airplane parts. The Transportation Department's inspector general, Mary Schiavo, says that FAA management has undermined several prosecutions by denying that counterfeit parts represent a safety hazard. ... Two years ago federal prosecutors in Phoenix had to drop serious charges against two engine-repair companies they thought were welding turbine blades illegally after [the FAA associate administrator for regulation and certification] concluded that such unapproved repairs were not a safety hazard. Now, prosecutors are conducting a follow-up investigation into the FAA's handling of the case."

5(a) Was your office a source for the details in the Newsweek article?

Answer:

No. Our office was not a source for the details in the Newsweek article. Newsweek and many other media representatives were already aware of the investigation and many had asked for details. We referred any media inquiries to the U.S. prosecutors in Phoenix, Arizona, and advised the U.S. Attorney's office of the media inquiries.

5(b) The Department of Justice directs its prosecutors "not to respond to questions about the existence of an ongoing investigation or comment on its nature or progress." U.S. Attorneys' Manual, 1-7.000, section VI(3)(a). Does your office have a similar policy?

Answer:

The section of the U.S. Attorney's manual you cited pertains to, "Media Relations." The Office of Inspector General's operating procedures manual at Volume I, Chapter 4, Paragraph 11, pertains to, "FOIA Requests, Congressional and Media Inquiries." This section of our policy manual contains procedures for employees in referring media inquiries to the Department's Office of Public Affairs, the appropriate Assistant Inspector General and the cognizant U.S. Attorney's Office, if applicable. Procedures are also provided concerning FOIA requests. It is also our practice to neither confirm nor deny the existence of an ongoing OIG investigation in response to inquiries from the public or the media.

Our policy and practice are also consistent with the authority provided under the Inspector General Act of 1978, as amended, found at Title 5, Appendix 3 of the U.S. Code. Section 5(e)(1)(c) of the Act provides that public disclosure of information which is part of an ongoing investigation is unauthorized. However, Section 5(e)2 provides an exception if such information has been included in a public record. Section 5(e)3 also provides an exception in responding to Congressional requests for information or questions which states: "Nothing in this section or in any other provision of this Act shall be construed to authorize or permit the withholding of information from the Congress, or from any committee or subcommittee thereof." The pertinent provisions of the Inspector General Act of 1978, as amended, are enclosed as Attachment 4.

5(c) At the hearing, you stated that the FAA associate administrator is "under investigation" by the FBI and a "defense criminal investigative agency." Is this the same matter referred to in the Newsweek article?

Answer:

During the hearing, I testified that I was not familiar with the details of the investigation. This office cannot speak for Newsweek and would defer to the U.S. Attorney's Office concerning details of the investigation.

5(d) At the hearing, you stated that, "I do not know the details [of the investigation]. I am not the investigative agency on it." Did your office play a role in the initiation of this investigation, such as by alleging possible misconduct by the associate administrator?

Answer:

This investigation of the FAA Associate Administrator for Regulation and Certification was initiated by the U.S. Attorney's Office. We were called by the U.S. Attorney's Office as witnesses in this matter because we were involved in a separate case under investigation with the U.S. Attorney's Office, the FBI and the Department of Defense, Defense Criminal Investigative Service (DCIS). During the course of this prior investigation, our office received a memorandum from the FAA relevant this prior investigation. We advised the U.S. Attorney's Office of the memorandum and furnished a copy of the memorandum to them at their request. The U.S. Attorney's Office decided to initiate a separate investigation of the FAA Associate Administrator and called us as witnesses. The U.S. Attorney's Office has conducted its investigation of this matter without our participation. We are not the investigating agency on this subsequent case. Our initial case has been held in abeyance pending the results of the subsequent investigation by the U.S. Attorney's Office.

5(e) At the hearing, you stated that, "because he is under investigation," you and several other people" in your office are "unable to even meet with the associate administrator." Who determined that you and other staff members are unable to meet with him? Please provide any documentation implementing or explaining the decision not to meet with the associate administrator.

Answer:

The staff was instructed by me (Inspector General) not to meet with the Associate Administrator for Regulation and Certification following interviews by the U.S. Attorney's Office, the Federal Bureau of Investigation and the Defense Criminal Investigative Service. We were witnesses, not prosecutors or investigators.

(6) Considering the range of safety concerns requiring agency action, what level of priority do you think the FAA should assign to the problem of unapproved aircraft parts? Should it be among the FAA's top three safety priorities?

Answer:

FAA's entire safety oversight program is the most important challenge facing the Department of Transportation today. We have repeatedly stated that bogus parts and FAA safety oversight are the number one problem in the Department and in the FAA.

The FAA does not have a list of its safety priorities. Lacking such a list, we cannot rank the unapproved aircraft parts problem. FAA has the capability to address multiple problems concurrently rather than each one sequentially. The unapproved parts issue should be at a priority level where timely actions are being taken to ensure all critical parts meet the rigid standards established by FAA.

A strategic plan should be developed for the SUP program. The SUP order should also be modified to include mandatory reporting by FAA inspectors. Until the magnitude of the problem is fully identified, it should be a high priority. Operator safety is one of the FAA's highest priorities, how can SUPs not be included in the same category?

Attachment 1

Memorandum

U.S. Department of
Transportation
Office of the Secretary
of Transportation

Office of Inspector General

Subject: **INFORMATION**: Notification of Audit of Suspected Unapproved Part Program (Project 441003400)

Date: April 19, 1994

From: Raymond J. DeCarli
Assistant Inspector General for Auditing

Reply to
Attn of:

To: Federal Aviation Administrator

This memorandum is to notify you that we plan to begin an audit of FAA's Suspected Unapproved Part (SUP) Program on or about June 1, 1994. The audit had been included in our draft FY 1994 audit plan, but was deleted when your staff requested we postpone the audit until FY 1995. We are beginning the audit at this time because our recent audit and inspection work identified parts issues that need to be addressed through the FAA's SUP Program.

The audit will evaluate the SUP Program by determining whether (1) SUP reports conveyed to FAA are timely entered and properly accounted for in the SUP data base, (2) SUP reports are timely and effectively screened and investigated, and (3) SUP report results are timely and effectively communicated to the aviation industry and FAA regulatory officials responsible for corrective actions. We will also evaluate the effectiveness of FAA's procedures used to confirm that unapproved parts are purged from the aviation industry's inventories.

Our audit will begin at FAA Headquarters in Washington, D.C. Audit work will also be performed at FAA regions, manufacturers, aircraft owner/operators, and repair stations. We will contact the FAA audit liaison to arrange an entrance conference.

Additional audit information may be obtained by contacting Mr. Gary L. Singletary, Regional Manager, or Mr. Alan D. Robson, Project Manager, at (404) 347-7825.

[illegible]

Attachment 2 1

U.S. Department of
Transportation

Office of the Secretary
of Transportation

Suite 376
1718 Peachtree Road, N.W.
Atlanta, Georgia 30309

Office of Inspector General

November 23, 1994

Mr. Donald Barber
Vice President of Aircraft Maintenance
Federal Express
3101 Tchulahoma
Memphis, TN 38118

Dear Mr. Barber:

The U.S. Department of Transportation, Office of Inspector General is conducting a nationwide audit of the Suspected Unapproved Parts (SUP) Program of the Federal Aviation Administration (FAA). One of our audit objectives is to determine if FAA is properly accounting for SUP reports submitted by the aviation industry. Therefore, as a member of the aviation community, we are soliciting input from Federal Express regarding any SUP reports submitted to FAA since October 1, 1993.

Your response is essential to accomplishing all audit objectives. We request that you please complete the enclosed questionnaire concerning SUP notifications Federal Express has submitted to FAA since October 1, 1993. Also, please send a copy of any written SUP notifications and information related to verbal SUP notifications made to either your local Flight Standards District Office or to FAA Headquarters in Washington, D.C.

We would appreciate your response by December 12, 1994. This request is not subject to the requirements of Section 3507 of the Paperwork Reduction Act of 1980. The Federal Express response will be a great help to us in reaching a conclusion on FAA's accountability of SUPs. If you have any questions, please contact either Mr. Alan Robson, Project Manager, at (404) 347-7825 or Ms. Robin Purcell, Auditor-in-Charge, at (404) 347-7829.

Sincerely,

for ADRobson

Gary L. Singletary
Regional Manager, Region IV

Enclosure

Attachment 2-2

U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF INSPECTOR GENERAL
SUSPECTED UNAPPROVED PARTS QUESTIONNAIRE

Air Carrier Name: Federal Express

Contact person: ____________________

Title: ____________________

Telephone number: ____________________

Please check one of the following:

____ **We have not discovered any suspected unapproved parts since October 1, 1993.**

____ **We discovered suspected unapproved parts subsequent to October 1, 1993, but as of the date of this letter we have yet to notify FAA.**

____ **We notified FAA of suspected unapproved parts discovered subsequent to October 1, 1993 and the copies are attached.**

Other comments:

DELTA AIR LINES, INC.
GENERAL OFFICES
HARTSFIELD ATLANTA INTERNATIONAL AIRPORT
ATLANTA, GEORGIA 30320-6001 U.S.A.

Attachment 3-1

December 5, 1994

Mr. Gary Singletary
Regional Manager, Region IV
Suite 376
1718 Peachtree Road, N. W.
Atlanta, Georgia 30309

Dear Mr Singletary:

Enclosed you will find copies of Suspected Unapproved Parts (SUP) forms filed with the FAA by Delta Air Lines, Inc.

If there is additional information you require, please feel free to contact me at (404) 714-2243.

Sincerely,

Jim Maucere
Manager - Technical Standards

Enclosures

DEC 5 1994

Attachment 3-2

U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF INSPECTOR GENERAL
SUSPECTED UNAPPROVED PARTS QUESTIONNAIRE

Air Carrier Name: Delta Air Lines, Inc.

Contact person: Jim Maucere

Title: Manager- Technical Standards

Telephone number: (404) 714-2243

Please check one of the following:

____ **We have not discovered any suspected unapproved parts since October 1, 1993.**

____ **We discovered suspected unapproved parts subsequent to October 1, 1993, but as of the date of this letter we have yet to notify FAA.**

_x_ **We notified FAA of suspected unapproved parts discovered subsequent to October 1, 1993 and the copies are attached.**

Other comments:

Attachment 3-3

OMB Approved: 2120-0052

SUSPECTED UNAPPROVED PARTS NOTIFICATION

1. Date: November 30, 1994
2. Nomenclature: Valve
3. Part No.: D29517-505
4. Serial No: 015-2149, 094-1963, 045-2309, 086-2688
5. Next Assembly Name & No.:
6. Quantity: 4
7. Make/Model: Slide/Raft

8. Part Manufacturer/Distributor:

Name: Air Cruiser
Street: P.O. Box 180 City: Belmar
State/Country: New Jersey Zip: 07719-0180

9. Description of Complaint:

The above part number was received at DAL DFW Slide Shop incorrectly modified to a different dash number -517. The part was overhauled by W.H.Brennan in Cerritos Calif, 17122 Marquardt Ave.

Per Air Cruiser the part cannot be modified and was inappropriately done so without a proper, trail and in conflict with manual requirements.
paper

The piston and chamber are a different size and it will not past an overhaul test.

[illegible]

10. Date Suspected Unapproved Part Discovered: November 3, 1994

11. Location Where Part was Discovered:

Name: DFW Slide Shop DAL
Street: Hangar City:
State/Country: Texas Zip:

Check One That Applies:

☐ Manufacturer ☐ Supplier
☐ Distributor ☐ Repair Station
☑ Other Air Carrier

12. Reporters Name:

Name: Jim Maucere - Mgr/Technical Standards Telephone No: (404) 714-2243
Street: Delta Air Lines City: Atlanta, Ga. 30320
State/Country: Dept. 218 Zip

13. ☐ Check here if you wish your identity to be kept confidential

FAA Form 8120-11 (2-91)
R-95%

Attachment 3-4

OMB Approved: 2120-0052

SUSPECTED UNAPPROVED PARTS NOTIFICATION

1. Date: 9-27-94
2. Nomenclature: SEAL
3. Part No.: 26124-0207
4. Serial No.: N/A
5. Next Assembly Name & No.:
6. Quantity: 38
7. Make/Model:

8. Part Manufacturer/Distributor:
Name: AGC INCORPORATED
Street: 106 EVANSVILLE AVENUE City:
State/Country: MERIDEN, CONNECTICUT Zip:

9. Description of Complaint:

MR. WILLIAM CARAVELLO, BUYER AT DAL BROUGHT TO MY ATTENTION THAT AGC COULD NOT FURNISH THE LATEST SEAL # ABOVE BECAUSE THEY DID NOT HAVE LATEST SB # 47111-79-002 FROM SERCK THE MANUFACTURER.

WE REQUESTED THAT AGC SUPPLY A COPY OF THEIR MANUFACTURING AUTHORITY AND SERCK PROVIDE A LETTER THAT AGC WAS A MANUFACTURER FOR THEM.

SERCK RESPONDED THEY HAD NO DEALINGS WITH AGC AND DID NOT KNOW THIS COMPANY.

[illegible] [illegible] details, [illegible] 12/6/94, could not locate this SUP,

10. Date Suspected Unapproved Part Discovered: 9-23-94

11. Location Where Part was Discovered:
Name: DELTA AIR LINES, INC.
Street: HARTSFIELD ATL. INTL. AIRPORT City: ATLANTA
State/Country: GEORGIA, U.S.A. Zip: 30320

Check One That Applies:
☐ Manufacturer
☐ Distributor
☐ Other AIR CARRIER
☐ Supplier
☐ Repair Station

12. Reporters Name:
Name: JIM MAUCERE - MANAGER Telephone No.: 404 714-2243
Street: DELTA AIR LINES City: ATLANTA, GA.
State/Country: GA, U.S.A. Zip 30320

13. ☐ Check here if you wish your identity to be kept confidential

FAA Form 8120-11 (8-91)

☆U.S. GOVERNMENT PRINTING OFFICE: 1991 - 627-000/40839

JUL-06-1995 14:14 FROM DOT/OIG NSARC TO OIG HQTRS P.22

Attachment 3-5

OMB Approved: 2120-0052

SUSPECTED UNAPPROVED PARTS NOTIFICATION

1. Date: 6-20-94
2. Nomenclature: Seal
3. Part No.: 720752-41
4. Serial No.: No Serial Number
5. Next Assembly Name & No.: Separator/733930-6
6. Quantity: 20
7. Make/Model: L-1011
8. Part Manufacturer/Distributor:

Name: Wencor West, Inc.
Street: P. O. Box 514, 1675 N. Mountain Springs Pky. City: Springville
State/Country: Utah, U.S.A. Zip: 84663-0514

9. Description of Complaint:

Seals described above were purchased from Wencor West on the condition of passing our acceptance criteria. After receiving parts, inconsistencies in the documentetion and the identificacion on the package caused us to check with Hamilton Standard as to Wencor West's status as a supplier. It was discovered that Wencor West is not a vendor for Hamilton Standard, nor do they hold P.M.A. for this part number seal. We could not find any authorization for Wencor West to manufacture this part number seal. Part may be inspected at address in Block 11.

Reviewed SUP database dated 12/6/94 could not locate this SUP.

10. Date Suspected Unapproved Part Discovered: 6-16-94
11. Location Where Part was Discovered:

Name: Delta Air Lines, Inc.
Street: T.O.C. Hartsfield Atlanta Int'l. Airport City: Atlanta
State/Country: Georgia U.S.A. Zip: 30320

Check One That Applies:

☐ Manufacturer ☐ Supplier
☐ Distributor ☐ Repair Station
☒ Other Air Carrier

12. Reporters Name:

Name: James L. Medcalf Telephone No.: 404:469-2316
Street: 1711 El Donles Ct. City: Stone Mountain
State/Country: GA/U.S.A. Zip: 30087

13. ☐ Check here if you wish your identity to be kept confidential

FAA Form 8120-11 (3-94)

★U.S. GOVERNMENT PRINTING OFFICE: 1993 - 417-000/00007

R-96X 07-06-95 02:47PM P022 #43

JUL-06-1995 14:16 FROM DOT/OIG NSARC TO OIG HQTRS P.23

Attachment 3-6

OMB Approved: 2120-0052

SUSPECTED UNAPPROVED PARTS NOTIFICATION

1. Date: February 7, 1994

2. Nomenclature: Valve

3. Part No.: 7921391

4. Serial No.:

5. Next Assembly Name & No:

6. Quantity: 6

7. Make/Model:

8. Part Manufacturer/Distributor:

Name: Hamilton Standard / BDB Aircraft Supply Co.

Street: 6473 Crater Lake Highway City:

State/Country: Medford, OR Zip: 97502

9. Description of Complaint:

While in the process of checking parts coming into Delta from a surplus dealer (BDB Aircraft Supply Co.), we found that six (6) valves, Part Number 7921391 did not have the proper documentation. We contacted the supplier two times and each time they sent documentation that was unacceptable.

We contacted Hamilton Standard, the O.E.M. of the valve. They checked their records and found a gap of seven valves in their system of receiving parts from their subcontractor (Industrial Prevision, Inc.). Six of these valves have arrived at Delta Air Lines in Atlanta.

94-224.

Reviewed SUP database dated 12/6/94, could not locate this SUP.

10. Date Suspected Unapproved Part Discovered: January 2, 1994

11. Location Where Part was Discovered:

Name: Delta Air Lines, Inc.

Street: Atlanta International Airport City: Atlanta

State/Country: GA, USA Zip: 30320

Check One That Applies:

☐ Manufacturer ☒ Supplier

☐ Distributor ☐ Repair Station

☐ Other

12. Reporters Name:

Name: James L. Medcalf, Dept. 510 Telephone No: (404) 714-5790

Street: Delta Air Lines, Inc. City: Atlanta

State/Country: GA, USA Zip: 30320

13. ☐ Check here if you wish your identity to be kept confidential

FAA Form 8120-11 (2-91)

*U.S. Government Printing Office: 1992- 312-473/42004

R-96%

07-06-95 02:47PM P023 #43

Attachment 3-7

FEDERAL EXPRESS

Serial No.:4440034000

FEDEX

[illegible]
Memphis, TN 38118
901 369-3600
U.S. Mail: Box 727
Memphis, TN 38194

12-1-94

Mr. Gary L. Singletary
U.S .Department of Transportation
Office of the Secretary of Transportation
Suite 376
1718 Peachtree Road, N.W.
Atlanta, Georgia 30309

Reference:Suspected Unapproved Parts Questionnaire

Dear Mr. Singletary:

Enclosed are copies of the five Suspected Unapproved Parts Notification submitted by Federal Express to FAA since October 1, 1993. In addition, a copy of the aircraft parts identification and release for twenty o-rings suspect parts that were turned over to the local FAA FSDO-25 (the inspector picked them up from Stores) 11-29-94. I do not have any details at this time concerning these o-rings. If you need to contact me, I have enclosed my business card.

Sincerely,

FEDERAL EXPRESS CORPORATION

Al Garcia
FAA Liaison
Quality Assurance

enclosure

cc: Don Barber

Attachment 3-8

U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF INSPECTOR GENERAL
SUSPECTED UNAPPROVED PARTS QUESTIONNAIRE

Air Carrier Name: Federal Express

Contact person: AL GARCIA

Title: FAA LIAISON QA

Telephone number: (901) 369-3993

Please check one of the following:

☐ We have not discovered any suspected unapproved parts since October 1, 1993.

☐ We discovered suspected unapproved parts subsequent to October 1, 1993, but as of the date of this letter we have yet to notify FAA.

☒ We notified FAA of suspected unapproved parts discovered subsequent to October 1, 1993 and the copies are attached.

Other comments: ARE WE (OPERATORS) EVER TO GET ANY FEEDBACK?

FedEx
Federal Express

Al Garcia, Jr.
FAA Liaison
Quality Assurance

Federal Express Corporation
3101 Tchulahoma
Memphis, TN 38118
U.S. Mail: PO Box 727
Memphis, TN 38194-5433
Telephone 901 369-3000
Fax 901 369-3439

R-95%

07-06-95 02:47PM P006 #43

Attachment 3-9

SUSPECTED UNAPPROVED PARTS NOTIFICATION

Date: 12/17/93

2. Nomenclature: #4 Bearing Gasket

Part No.: 697259

4. Serial No: N/A

Next Assembly Name & No: DIFFUSER CASE

6. Quantity: 1 PER CASE

7. Make/Model: JT8D-ALL TYPES

Part Manufacturer/Distributor:

Name: VALTEC

Street: ESSEX INDUSTRIAL PARK City: IVORYTON

State/Country: CONNECTICUTT U.S. Zip: 06442

Description of Complaint:

FSAW 93-48. Unapproved Gaskets Manufactured by and distributed by Ramco American International

Searched SUP database dated 10/5/94. Could not find this SUP in database. ✓

✓ Verified - could not locate in database.

RECEIVED

DEC 17 1993

FAA LIAISON

10. Date Suspected Unapproved Part Discovered: 12/14/93

11. Location Where Part was Discovered:

Name: AIRCRAFT TECHNICAL STORES (BELTZ WAREHOUSE)

Street: 3268 DEMOCRAT RD, DOCK 12 City: MEMPHIS

State/Country: TENNESSEE, U.S. Zip: 38118-3368

Check One That Applies:

☐ Manufacturer ☐ Supplier

☐ Distributor ☐ Repair Station

☒ Other AIRCRAFT PARTS WAREHOUSE 121 OPERATOR

12. Reporters Name:

Name: EDDIE WILSON Telephone No: 369-2428

Street: 3101 TCHULAHOMA (TAB BUILDING) City: MEMPHIS

State/Country: SHELBY Co TENN Zip 38194

13. ☐ Check here if you wish your identity to be kept confidential

FAA Form 8120-11 (2-91)

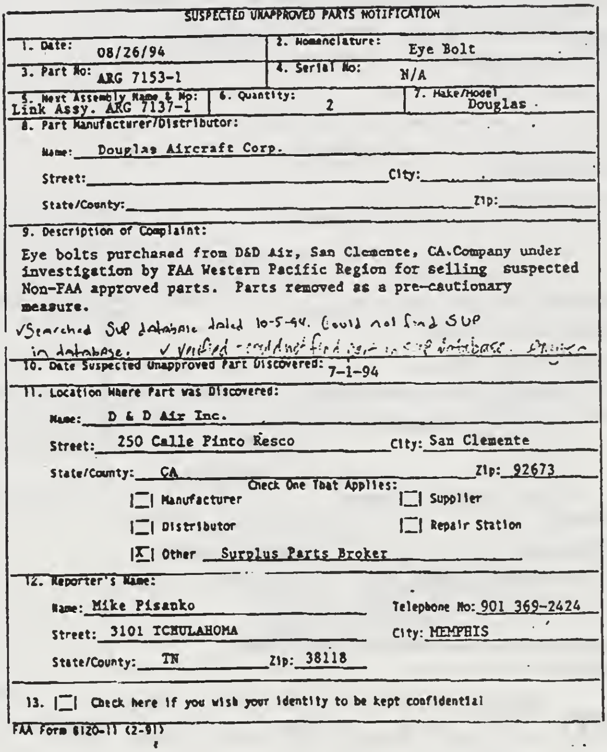
*U.S. Government Printing Office [illegible]

R-95%

07-06-95 02 47PM P008 #43

Attachment 3-10

FAA



SUSPECTED UNAPPROVED PARTS NOTIFICATION

1. Date: 08/26/94
2. Nomenclature: Eye Bolt
3. Part No: ARG 7153-1
4. Serial No: N/A
5. Next Assembly Name & No: Link Assy. ARG 7137-1
6. Quantity: 2
7. Make/Model: Douglas

8. Part Manufacturer/Distributor:

Name: Douglas Aircraft Corp.
Street:
City:
State/County:
Zip:

9. Description of Complaint:

Eye bolts purchased from D&D Air, San Clemente, CA. Company under investigation by FAA Western Pacific Region for selling suspected Non-FAA approved parts. Parts removed as a pre-cautionary measure.

✓Searched SUP database dated 10-5-94. Could not find SUP in database. ✓ verified - couldn't find part in SUP database. [illegible]

10. Date Suspected Unapproved Part Discovered: 7-1-94

11. Location Where Part was Discovered:

Name: D & D Air Inc.
Street: 250 Calle Pinto Resco
City: San Clemente
State/County: CA
Zip: 92673

Check One That Applies:

☐ Manufacturer
☐ Supplier
☐ Distributor
☐ Repair Station
☒ Other Surplus Parts Broker

12. Reporter's Name:

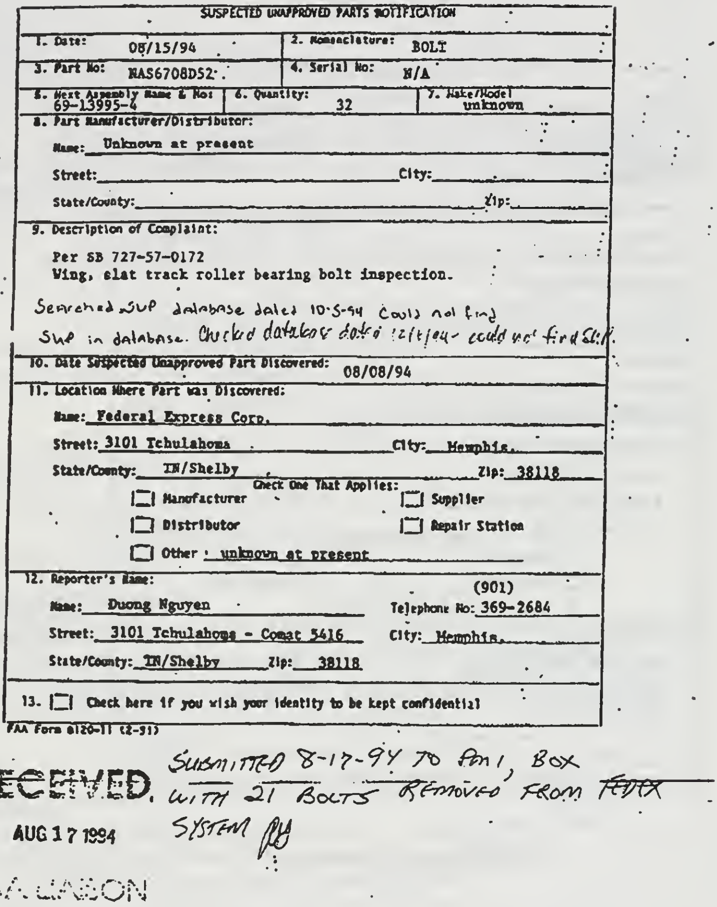
Name: Mike Pisanko
Telephone No: 901 369-2424
Street: 3101 TCHULAHOMA
City: MEMPHIS
State/County: TN
Zip: 38118

13. ☐ Check here if you wish your identity to be kept confidential

FAA Form 8120-11 (2-91)

Suspected Unapproved Parts Notification
FAA Form 8120-11
Figure 2

Attachment 3-11



SUSPECTED UNAPPROVED PARTS NOTIFICATION

1. Date: 08/15/94	2. Nomenclature: BOLT
3. Part No: NAS6708D52	4. Serial No: N/A

5. Next Assembly Name & No: 69-13995-4	6. Quantity: 32	7. Make/Model unknown

8. Part Manufacturer/Distributor:

Name: Unknown at present

Street: City:

State/County: Zip:

9. Description of Complaint:

Per SB 727-57-0172

Wing, slat track roller bearing bolt inspection.

Searched SUP database dated 10-5-94 could not find SUP in database. Checked database dated 12/1/94 - could not find SUP.

10. Date Suspected Unapproved Part Discovered: 08/08/94

11. Location Where Part was Discovered:

Name: Federal Express Corp.

Street: 3101 Tchulahoma City: Memphis.

State/County: TN/Shelby Zip: 38118

Check One That Applies:

☐ Manufacturer ☐ Supplier

☐ Distributor ☐ Repair Station

☐ Other : unknown at present

12. Reporter's Name:

Name: Duong Nguyen Telephone No: (901) 369-2684

Street: 3101 Tchulahoma - Comat 5416 City: Memphis.

State/County: TN/Shelby Zip: 38118

13. ☐ Check here if you wish your identity to be kept confidential

FAA Form 8120-11 (2-91)

RECEIVED

AUG 17 1994

FAA LIAISON

SUBMITTED 8-17-94 TO PMI, BOX WITH 21 BOLTS REMOVED FROM FEDEX SYSTEM

Attachment 3-12

Assignment No. 4440034000

TWA

Trans World Airlines, Inc.
P. O. Box 20126
Kansas City, Missouri 64195

December 9, 1994

Mr. Gary L. Singletary
Regional Manager, Region IV
U. S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General
1718 Peachtree Road, N.W., Suite 376
Atlanta, Georgia 30309

Dear Mr. Singletary:

Mr. Joseph Werner, TWA Vice President of Maintenance and Engineering, asked me to respond to your letter of November 23, 1994, concerning the audit of the Suspected Unapproved Parts (SUP) Program of the Federal Aviation Administration (FAA).

Attached is a SUP notification made by TWA and submitted to the FAA since October 1, 1993.

Very truly yours,

Lawrence F. Brett

Lawrence F. Brett, Director
FAA/ATA Liaison and
Quality Assurance

Attachment

DEC [illegible]

Icahn Enterprises
Trans World Airlines • ACF Industries, Inc. • Icahn & Co. Inc. Members NYSE • Bayswater Realty & Capital Corp. • Foxfield Thoroughbreds, Inc.

Attachment 3-13

U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF INSPECTOR GENERAL
SUSPECTED UNAPPROVED PARTS QUESTIONNAIRE

Air Carrier Name: Trans World Airlines, Inc.

Contact person: Lawrence F. Brett

Title: Director-FAA/ATA Liaison & Quality Assurance

Telephone number: (816) 891-4642

Please check one of the following:

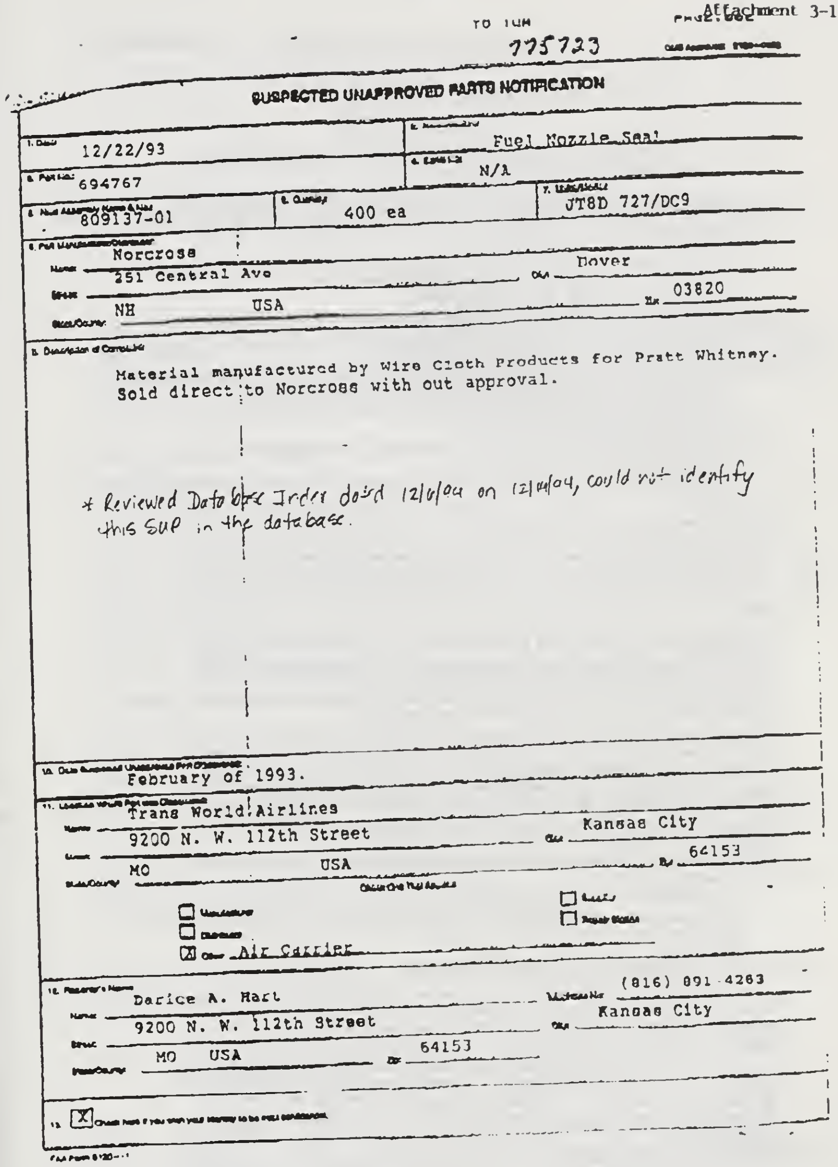
____ **We have not discovered any suspected unapproved parts since October 1, 1993.**

____ **We discovered suspected unapproved parts subsequent to October 1, 1993, but as of the date of this letter we have yet to notify FAA.**

_X_ **We notified FAA of suspected unapproved parts discovered subsequent to October 1, 1993 and the copies are attached.**

Other comments:

Attachment 3-14



TO TUM PAGE.002

775723

OMB Approval [illegible]

SUSPECTED UNAPPROVED PARTS NOTIFICATION

1. Date 12/22/93

2. Part Name Fuel Nozzle Seal

3. Part No. 694767

4. Serial No. N/A

5. Next Assembly Name & No. 809137-01

6. Quantity 400 ea

7. Make/Model JT8D 727/DC9

8. Part Manufacturer/Distributor

Name Norcross

Street 251 Central Ave

City Dover

State/Country NH USA

Zip 03820

9. Description of Condition

Material manufactured by Wire Cloth Products for Pratt Whitney.
Sold direct to Norcross with out approval.

* Reviewed Data Base Order dated 12/6/04 on 12/14/04, could not identify this SUP in the database.

10. Date Suspected Unapproved Part Discovered February of 1993.

11. Location Where Part was Discovered

Name Trans World Airlines

Street 9200 N. W. 112th Street

City Kansas City

State/Country MO USA

Zip 64153

Circle One That Applies

☐ Manufacturer

☐ Distributor

☒ Other Air Carrier

☐ Airline

☐ Repair Station

12. Reporter's Name

Name Darice A. Hart

Telephone No. (816) 891-4263

Street 9200 N. W. 112th Street

City Kansas City

State/Country MO USA

Zip 64153

13. ☒ Check here if you wish your identity to be kept confidential.

FAA Form 8120-11

Attachment 4

§ 5. Semiannual reports; transmittal to Congress; availability to public; immediate report on serious or flagrant problems

(a) Each Inspector General shall, not later than April 30 and October 31 of each year, prepare semiannual reports summarizing the activities of the Office during the immediately preceding six-month periods ending March 31 and September 30. Such reports shall include, but need not be limited to—

(1) a description of significant problems, abuses, and deficiencies relating to the administration of programs and operations of such establishment disclosed by such activities during the reporting period;

(2) a description of the recommendations for corrective action made by the Office during the reporting period with respect to significant problems, abuses, or deficiencies identified pursuant to paragraph (1);

(3) an identification of each significant recommendation described in previous semiannual reports on which corrective action has not been completed;

(4) a summary of matters referred to prosecutive authorities and the prosecutions and convictions which have resulted;

(5) a summary of each report made to the head of the establishment under section 6(b)(2) during the reporting period; and

(6) a listing of each audit report completed by the Office during the reporting period.

(b) Semiannual reports of each Inspector General shall be furnished to the head of the establishment involved not later than April 30 and October 31 of each year and shall be transmitted by such head to the appropriate committees or subcommittees of the Congress within thirty days after receipt of the report, together with a report by the head of the establishment containing any comments such head deems appropriate.

(c) Within sixty days of the transmission of the semiannual reports of each Inspector General to the Congress, the head of each establishment shall make copies of such report available to the public upon request and at a reasonable cost. Within 60 days after the transmission of the semiannual reports of each establishment head to the Congress, the head of each establishment shall make copies of such report available to the public upon request and at a reasonable cost.

(d) Each Inspector General shall report immediately to the head of the establishment involved whenever the Inspector General becomes aware of particularly serious or flagrant problems, abuses, or deficiencies relating to the administration of programs and operations of such establishment. The head of the establishment shall transmit any such report to the appropriate committees or subcommittees of Congress within seven calendar days, together with a report by the head of the establishment containing any comments such head deems appropriate.

(e)(1) Nothing in this section shall be construed to authorize the public disclosure of information which is—

(A) specifically prohibited from disclosure by any other provision of law;

(B) specifically required by Executive order to be protected from disclosure in the interest of national defense of national security or in the conduct of foreign affairs; or

(C) a part of an ongoing criminal investigation.

(2) Notwithstanding paragraph (1)(C), any report under this section may be disclosed to the public in a form which includes information with respect to a part of an ongoing criminal investigation if such information has been included in a public record.

(3) Except to the extent and in the manner provided under section 6103(f) of the Internal Revenue Code of 1986 [26 U.S.C.A. § 6103(f)], nothing in this section or in any other provision of this Act shall be construed to authorize or permit the withholding of information from the Congress, or from any committee or subcommittee thereof.

(f) As used in this section—

(1) the term "questioned cost" means a cost that is questioned by the Office because of—

(A) an alleged violation of a provision of a law, regulation, contract, grant, cooperative agreement, or other agreement or document governing the expenditure of funds;

(B) a finding that, at the time of the audit, such cost is not supported by adequate documentation; or

(C) a finding that the expenditure of funds for the intended purpose is unnecessary or unreasonable;

(2) the term "unsupported cost" means a cost that is questioned by the Office because the Office found that, at the time of the audit, such cost is not supported by adequate documentation;

SUPPLEMENTAL TESTIMONY
Of
Chester Paul Beach, Jr.
On Behalf Of The
AEROSPACE INDUSTRIES ASSOCIATION

RESPONSES TO POST-HEARING QUESTIONS FROM SENATOR LEVIN

(1) Do you agree with the Department of Transportation Inspector General that unapproved aircraft parts pose a significant safety problem, or do you agree with the FAA that, while unapproved parts pose a safety concern, they do not pose a significant safety problem?

Safety statistics indicate that commercial aviation is objectively safe, notwithstanding the existence of an apparently substantial existing inventory of unapproved parts. I suggested several reasons for this in my written statement, at pages 4-9. The defects in the current regulatory scheme, and the lack of strong, consistent enforcement recently acknowledged by the FAA, pose a safety concern -- because they create holes in the regulatory scheme of FAA design approval and oversight of manufacturing for aircraft spare parts which are not based upon an engineering judgment that such direct approval and oversight is not necessary to ensure safety. I addressed these issues in my written statement, at pages 13-19 and 21-23. These deficiencies may have made it easier than it should be for counterfeit and other substandard parts, such as those highlighted by the Inspector General, to come into the inventory and get that much closer to potential installation aboard an aircraft. The investigations led by the Inspector General establish clearly the existence of counterfeit and substandard parts among the existing population of unapproved parts, and that some of these parts would pose a significant risk to safety if installed on an aircraft.

(2) Drawing on your experience, approximately what percentage of existing unapproved aircraft parts are:

- (a) equivalent to and could qualify as FAA approved parts, but lack required paperwork;
- (b) counterfeit, meaning they are not equivalent to and could not qualify as FAA approved parts and are tainted by some element of fraud or misrepresentation;
- (c) unsafe to use in aircraft.

It is impossible to assign percentages. As I stated in my written testimony at pages 7 and 8, our experience at Pratt & Whitney suggests that it is reasonable to conclude that a substantial portion of the parts in current inventory which are actually unapproved are the result of direct sales to market by manufacturers who lack PMA or other FAA approval, but may produce like parts for production approval holders, and that the vast majority of such parts probably conform to type design. The primary risk to safety is posed by counterfeit and other nonconforming parts; our experience has been that such cases have been infrequent in relation to the overall number of unapproved parts we have examined, and that -- while they are a matter of serious concern -- they do not comprise a substantial portion of the current population of suspected unapproved parts.

(3) Considering the range of safety concerns requiring agency action, what level of priority do you think the FAA should assign to the problem of unapproved aircraft parts? Should it be among the FAA's top three safety priorities?

The FAA should assign a higher priority to the problem of unapproved parts. The AIA is hopeful that the FAA's recent announcement of an intention to enforce parts manufacturing rules more vigorously, and the long-awaited implementation of a registration and accreditation program for parts distributors and brokers, are reflective of an increased focus on this issue. The FAA must, of course, establish its safety priorities with primary regard to factors which have had the most demonstrable consequences on aviation safety. AIA will continue to work with the FAA and other industry representatives proactively -- to prevent the problem of unapproved parts from having such consequences.

(4) The Inspector General testified that members of the aviation community often fail to submit reports of suspected unapproved parts ("SUP reports") to the FAA and, of the SUP reports submitted "many" are not reflected in the SUP database. Is this testimony consistent with your experience?

I do not have information which would enable me to comment one way or the other on the Inspector General's view. At Pratt & Whitney, we do file SUP reports routinely. As I noted in my written statement at pages 19-20, we note that these reports are being routed reasonably promptly to local FAA personnel, and those personnel are actively investigating them.

(5) Do you agree with the Inspector General that parts maintenance problems should be reported on SUP reports rather than Service Difficulty Reporting (SDR) reports? If a repair facility uses only approved parts, but installs or

repairs them improperly, shouldn't the FAA treat the matter as a maintenance rather than SUP problem?

This appears to be an administrative matter within the FAA's discretion.

(6) Do you support the suggestion that the Inspector General appears to make on page 22 of her prepared statement that all standard parts in aircraft part inventories be required to have accompanying documentation identifying the original manufacturer?

As my written testimony at pages 13-14 makes clear, AIA shares the Inspector General's concern that some standard parts may have a significant impact on safety, but are presently exempt from the requirements of FAR 21.303. I indicated in my written testimony at page 24 that the FAA should clarify FAR 21.303, tailor its application appropriately to ensure FAA approval and oversight for all parts which affect safety, and "develop information systems which will enable an installing entity to determine which part numbers require FAA manufacturing approval, and which parts actually have it. This should include defining standard documentation [such as an FAA Form 8130-3] that should be required to accompany the transfer of a part, and clarifying the circumstances under which documentation should be available to support installation of the part."

RE: MAY 24, 1995 SENATE HEARING ON SUSPECTED UNAPPROVED PARTS

RAA RESPONSES TO POST-HEARING QUESTIONS FROM SENATOR LEVIN

(1) RAA agrees with FAA that the issue of unapproved aircraft parts is a concern but does not currently pose a significant safety problem

(2) (A) 90% or more
(B) <5%
(C) <1%

(3) RAA believes FAA should continue to (1) give priority to applications for Parts Manufacturing Approvals, (2) maintain high levels of awareness, and (3) encourage reporting of suspected counterfeit/fraudulent parts to law enforcement agencies. However, the suspected unapproved parts issue should not be among FAA's top three safety priorities.

(4) RAA does not agree with the IG's generalization, and believes that its member airlines submit SUP reports when they suspect that an unapproved part has been encountered.

(5) RAA does not agree with the IG that parts maintenance problems should be reported as SUP. SDR reporting system is appropriate and well understood as the system to report maintenance problems, whatever their cause. RAA agrees that FAA should treat improperly repaired parts as a maintenance problem rather than as a SUP.

(6) RAA does not support IG recommendation regarding "standard" parts. This has not been a safety problem. Documentation of every nut, bolt, rivet, etc., would be a monumental and unnecessary burden.

June 21, 1995

POST-HEARING QUESTIONS FROM SENATOR LEVIN

Questions to members of third panel, Chester Paul Beach, Jr., Michael F. Rioux, Walter S. Coleman, Edward J. Glueckler, and James Frisbee

(1) Do you agree with the Department of Transportation Inspector General that unapproved aircraft parts pose a significant safety problem, or do you agree with the FAA that, while unapproved parts pose a safety concern, they do not pose a significant safety problem?

(2) Drawing on your experience, approximately what percentage of existing unapproved aircraft parts are:

(a) equivalent to and could qualify as FAA approved parts, but lack required paperwork;

(b) counterfeit, meaning they are not equivalent to and could not qualify as FAA approved parts and are tainted by some element of fraud or misrepresentation;

(c) unsafe to use in aircraft.

(3) Considering the range of safety concerns requiring agency action, what level of priority do you think the FAA should assign to the problem of unapproved aircraft parts? Should it be among the FAA's top three safety priorities?

(4) The Inspector General testified that members of the aviation community often fail to submit reports of suspected unapproved parts ("SUP reports") to the FAA and, of the SUP reports submitted "many" are not reflected in the SUP database. Is this testimony consistent with your experience?

(5) Do you agree with the Inspector General that parts maintenance problems should be reported on SUP reports rather than Service Difficulty Reporting (SDR) reports? If a repair facility uses only approved parts, but installs or repairs them improperly, shouldn't the FAA treat the matter as a maintenance rather than SUP problem?

(6) Do you support the suggestion that the Inspector General appears to make on page 22 of her prepared statement that all standard parts in aircraft part inventories be required to have accompanying documentation identifying the original manufacturer?

Airline Suppliers Association

ANSWER TO QUESTION ONE:

Unapproved aircraft parts do not pose a significant safety problem. However, counterfeit parts, and parts which include counterfeit documentation making misrepresentations as to the quality, airworthiness, or maintenance records, do present a potential threat to aviation safety.

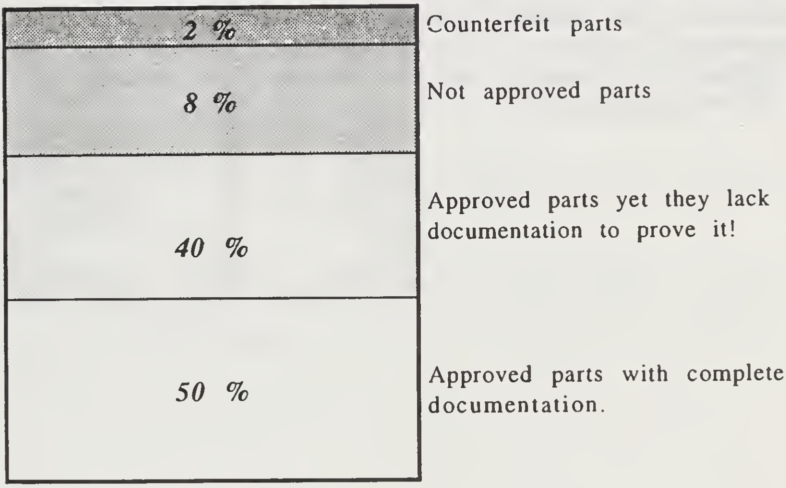
Parts which are manufactured outside of an FAA approved manufacturing and inspection system (a.k.a. unapproved parts) are knowingly used by airlines after passing through their engineering departments for approval. They could present a safety risk if someone misrepresents them as being approved parts. However, where an aircarrier has approved the use of this part in their maintenance program, they have the ability to test and approve this part for use on their aircraft.

Ultimately the question is whether or not the part is airworthy. If the part has been manufactured and inspected under an FAA approved manufacturing system, the mechanic is given a greater level of confidence that the part is airworthy. Even so, he still takes steps to ensure that installation of this part will return the aircraft to an airworthy condition. If the part is not an FAA approved part he usually relies upon the airline's engineering department approval or other tests to ensure that the part will return the aircraft to an airworthy condition.

Airline Suppliers Association

ANSWER TO QUESTION TWO:

(a) Industry estimates indicate that around 90% of the inventory of parts for sale are approved parts. Probably a little less than half of those parts (approximately 40 % of the inventory of parts) do not have the complete documentation to prove that they are from an FAA approved manufacturer. This is because there is no regulatory requirement for the manufacturer to provide this documentation and no regulatory requirement for the airline to have this documentation.



(b) The best estimates as to the number of counterfeit parts in circulation is 2 % *OR LESS* of the total parts in inventory.

(c) The best estimates of the percentage of parts unsafe to use in aircraft is about 5% *OR LESS*. This would include counterfeit parts, parts on the shelf which have been damaged in shipping, and parts whose shelf time-limit has expired and have not been yet purged from inventory. *It is important to note that the majority of these parts would be identified as unairworthy at the time of their use or earlier!*

Airline Suppliers Association

Answer to Question Three:

The FAA should keep the issue of unapproved parts *"on their radar screen"* but needs to also keep it in perspective with the overall picture. Without attempting to set the FAA's agenda for them I believe the nation's air traffic system should be a top priority. The NTSB has a top ten list of safety issues which should also serve as an indication of areas which require full attention of the FAA.

The only way the issue is going to be kept under control is through continued joint efforts involving both the industry and FAA. The FAA's proposal to support an industry accreditation program for parts suppliers is an excellent example of the type of joint efforts which could be implemented.

ANSWER TO QUESTION FOUR:

(i) Many would-be SUP reports are not submitted to the FAA because they are reports of maintenance problems, faulty repairs, design defects, etc. not reports of parts being manufactured for installation on aircraft outside of an FAA approved manufacturing system.

Also, reporting of SUPs has not been as high as some would have hoped it would be. This is do in part to many factors:

- Industry confusion as to what is an unapproved part.
- Industry confusion as to what documentation you need to prove that it is an approved part. (And even if you need to prove that the part is an approved part!)
- Desire by some to want to use the SUPs reports for maintenance related items.

(ii) I have no knowledge of SUPs reports being submitted to the FAA which were legitimate SUPs reports which have not been reflected in the FAA's SUP data base.

Airline Suppliers Association

ANSWER TO QUESTION FIVE:

If the system is to work we must report Suspected Unapproved Parts as suspected unapproved parts and maintenance related problems as Service Difficulty Reports (SDRs).

I can think of no benefit to include parts manufactured under an FAA approved production system or repaired by an FAA approved repair station which were determined to depart from the type design to be included as suspected unapproved parts. My concern is that if such practice were to be encouraged aviation safety would be at risk from the resulting confusion of investigating the SUP report only to determine that it should have been reported as a SDR.

Airline Suppliers Association

Answer to Question Six:

The question of documentation for the traceability of standard parts back to the manufacturer is not an easy one; if it was the regulations under the Fastener Quality Act (FQA) would have been written back in 1990 when the Act was passed.

Standard parts can only have accompanying documentation tracing them to their manufacture if the manufacturer provides such documentation. Even so, once the standard parts enter a maintenance facility, lot and batch traceability disappear. Standard parts are often packaged in bulk. Once open, they are put into bins on the shop floor for use by mechanics.

It would probably be best for industry to follow the regulations as developed under the Fastener Quality Act then it would be for the FAA to promulgate new regulations which may be inconsistent with resulting regulations from the FQA.

INSPECTOR GENERAL
U.S. DEPARTMENT
OF
TRANSPORTATION

SUPPLEMENT TO TESTIMONY
REGARDING AVIATION PARTS
MAY 24, 1995

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TAB 1

BOGUS AND UNAPPROVED PARTS

(THE CRIMINAL PROBLEM)

NEW PARTS

- No Production Approval (Counterfeit and Fraudulently Manufactured Parts)
- No Individual Production Approval (Current PAH Relationship but also make other parts - PMA issues)
- Rejected Parts Sold by PAH

SCRAP/USED PARTS

- Counterfeit and Fraudulently Overhauled/Repair Parts
- Salvaged Parts from Stolen, Scrapped, or Crashed Aircraft
- Military Surplus Parts (Not FAA Approved)
- Inventory Exceeding Shelf-life and/or of Unknown Origin
- Owner/Operator Produced or Modified Parts Sold to Another Party

SUSPECTED UNAPPROVED PARTS

(THE PAPERWORK PROBLEM)

NEW PARTS

- An Approved Part With Missing Paperwork

USED PARTS

- A Properly Repaired Part Which Was Certified But Lost Its Paperwork

TAB 2

Department of Transportation
Office of Inspector General

Criminal Investigations of Unapproved Aircraft Parts

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

THE FOLLOWING SUMMARIES REPRESENT A CROSS SECTION OF OIG INVESTIGATIONS OF UNAPPROVED AIRCRAFT PARTS WHICH HAVE RESULTED IN FEDERAL PROSECUTION.

TO DATE, OIG INVESTIGATIONS OF UNAPPROVED PARTS HAVE RESULTED IN 139 INDICTMENTS. A TOTAL OF 111 INDIVIDUALS AND CORPORATIONS HAVE BEEN CONVICTED, LEADING TO 59 YEARS INCARCERATION, 239 YEARS PROBATION AND $44 MILLION IN FINES, RESTITUTION AND RECOVERIES. CURRENTLY, 22 OTHER JUDICIAL ACTIONS ARE PENDING.

CERTAIN SUMMARIES CONTAIN INFORMATION REGARDING DEFENDANTS WHO HAVE RECENTLY BEEN INDICTED. IT MUST BE NOTED THAT INDICTMENTS ARE ACCUSATIONS AND DEFENDANTS ARE PRESUMED INNOCENT UNLESS AND UNTIL PROVEN GUILTY.

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U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

ACCENT FASTENERS, INC.
Parts Distributor
Melbourne, Florida

This investigation was opened in March 1993 based on information from a government contractor who alleged that ACCENT FASTENERS, INC. (ACCENT) was distributing fasteners at prices markedly below its competitors.

The investigation was conducted by a joint Task Force based in Baltimore, Maryland, consisting of DOT/OIG, FBI, Department of Defense OIG, NASA OIG, and the Naval Criminal Investigative Service. On March 17, 1993, a search warrant was executed by DOT/OIG and the other members of the Task Force at ACCENT. The investigation established that ACCENT had been **substituting standard hardware** which did not meet the military contract specifications. ACCENT concealed the fraud by chemically changing the color of the standard hardware fasteners and then certified that they met all government contract specifications. ACCENT distributed and sold these fasteners throughout the eastern United States to federal government contractors and subcontractors and to commercial users. About 60 percent of ACCENT's sales were to commercial customers.

On March 14, 1995, the company, its president, Glenn R. Lamb, and its vice president, Anthony J. Arch, were charged with one count of Mail Fraud. All three pleaded guilty. Lamb and Arch each face up to five years in prison and $250,000 fines. Sentencing is set for June 19, 1995. Debarment action is pending by DOD.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

ACE FASTENER CO., INC.
Parts Distributor
Camden, New Jersey

This investigation was based on information disclosed during an investigation conducted by a Task Force based in Philadelphia, PA, consisting of DOT/OIG, FBI, Department of Defense OIG, and the Air Force and Navy criminal investigation units. The investigation included an undercover operation fronting as a distributor of aerospace fasteners.

Based upon undercover purchases of fasteners and fittings, such as, couplings, adapters, screws and bolts, sufficient evidence of probable criminal activity was gathered which resulted in the execution of a federal search warrant on ACE FASTENER CO., INC. (ACE) in July 1992. Evidence secured during the search warrant was reviewed and analyzed, establishing that ACE supplied and distributed fasteners and fittings directly to federal agencies, FAA and DOD contractors, and commercial aviation companies. Because these fasteners and fittings often have critical applications, they must meet rigid, published manufacturing and testing requirements. The fasteners and fittings supplied by ACE were used for commercial and military helicopters and aircraft engines, and DOD weapons systems. The investigation, which took over three years to complete, disclosed that Harvey Goodwin, President and owner of ACE, was purchasing ordinary commercial grade fasteners, significantly marking up the prices, and passing them off to unsuspecting customers as being tested and meeting all applicable specifications, such as stress durability, tensile strength, chemical and physical composition, and hardness. The certificates of conformance which accompanied shipments by ACE to its customers were false as proven by independent testing in which many of the parts failed. Harvey Goodwin was charged in February 1994 with a one-count felony violation of Wire Fraud. In December 1994, he was sentenced to four months of incarceration, fined $2,000, and upon release will be on probation for three years. ACE and Goodwin have been debarred by the DOD from all government contracting until February 23, 1997.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

AIR MARINE SALES, INC.
FAA-Certified Repair Station
Titusville, Florida

This investigation was initiated in March 1992 based on information from United Parcel Service (UPS), Louisville, Kentucky, that AIR MARINE SALES, INC. (AMS) overhauled two UPS air flap indicators using unapproved parts. The air flap indicators were intended for use on UPS' Boeing 727 aircraft. UPS had the components inspected by the Original Equipment Manufacturer which confirmed the use of bogus parts. Flaps, which are located on the trailing edge of the wings, are control surfaces deployed during take-offs and landings to provide the aircraft with additional lift at lower airspeeds. Flap indicators are panel instruments which tell the pilot the number of degrees the flaps are deployed. Errant flap indicator readings can have critical flight consequences.

In August 1994, a six-count indictment was returned by a federal grand jury in Louisville, Kentucky, charging the company, its vice president, and two company inspectors with conspiracy, false statements, and obstruction of justice. Trial was set for May 8, 1995, but at the last minute AMS entered a plea of guilty to a one-count misdemeanor and agreed to pay a $40,000 fine.

As a result of our investigation of AMS, other investigations have been initiated involving parts for DOT's own aircraft.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

AIR SUPPLY INDUSTRIES, INC.
Parts Distributor
Phoenix, Arizona

This investigation was based on information received from an FAA inspector indicating that AIR SUPPLY INDUSTRIES, INC. (ASI) had sold substandard jet engine parts and falsified maintenance records.

Investigation disclosed that ASI purchased scrap General Electric military combustion liner assemblies for the J-85 engine, welded up cracks in the liners "for cosmetic purposes," and cut new holes in the assemblies so they would now fit civil aviation aircraft engines. The distributor then counterfeited a reputable FAA approved repair station's airworthiness tag, completed the information on the tag and attached it to the assemblies. The assemblies, with the tags, were then sold to an FAA-certified repair station. The FAA inspector who inspected the parts stated the parts would likely have failed. The original equipment manufacturer who examined the parts noted numerous conditions which would have rendered the parts unairworthy. Joseph P. Smith, Jr., the managing director of ASI, was convicted and sentenced August 24, 1992, to 16 months in prison, $5050 fine with three years probation. At sentencing the judge stated:

> " After reviewing the entire record, it occurs to this court that you are a person totally without moral conscience. . . What remains is the fact that you simply acted in this instance without conscience, without regard for the potential effect on the lives of the humans who might be flying in the airplanes which contained the parts that you had falsely certified as being in fine, excellent working condition. . . There is no justification for your act, Mr. Smith. You are either without conscious of any falsification, total disregard for the consequences, or you were simply so caught up in the profit motive that you recklessly disregarded the consequences of certifying these as workable parts, when the overwhelming testimony is that they were flawed and that the potential risk for harm was severe. And the obvious result of that would be serious bodily harm, probably death. For that reason the court is going to impose the maximum sentence upon you..."

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

AMERICAN PRECISION COMPONENTS, INC.
Parts Distributor
Farmingdale, New York

This investigation was opened in February 1992 based on information disclosed during an investigation conducted by a Task Force based in Philadelphia, Pennsylvania, consisting of DOT/OIG, FBI, Department of Defense OIG, and the Air Force and Navy criminal investigation units. This investigation included an undercover operation fronting as a distributor of aerospace fasteners.

AMERICAN PRECISION COMPONENTS, INC. (APCI) sold millions of dollars worth of O-rings, fasteners, adapters, couplings, and fittings directly to federal agencies, government contractors, and commercial aviation companies such as Bell, General Dynamics, and General Electric-Aircraft Engines. Because these fasteners and fittings often have critical applications, they must meet rigid manufacturing and testing requirements. APCI certified that all of the fasteners and fittings it sold met all government specifications and passed APCI's own internal quality assurance procedures. Parts purchased by the undercover operation were tested. Many of the parts failed to meet the specifications and were found to be of common hardware store variety. The investigation determined that the sole owner of APCI, David D'Lorenzo, signed the certifications using an alias to make it appear as though APCI had a real quality control department. The only quality control inspection done at APCI was improperly performed dimensional inspection.

D'Lorenzo used other means to deceive his customers. He had commercial grade fasteners plated to give an authentic appearance; falsifying manufacturer certifications; claiming that APCI was a manufacturer, when it was just a distributor; and had head markings placed on untested fasteners indicating they were properly tested.

The fasteners and fittings sold by APCI were used for commercial aircraft and military/aerospace applications, including the Aircraft Carrier Kitty Hawk, Hubbell Space Telescope, Titan IV missile program, and the Sea Sparrow submarine. D'Lorenzo had previously been convicted of selling substandard parts to the Portsmouth Naval Shipyard in 1988. In October 1993, APCI and D'Lorenzo were each charged with two counts of Wire Fraud. In January 1994, per a civil judgment, APCI and D'Lorenzo forfeited $2.2 million in cash and a 1993 Porsche 968 convertible. On May 19, 1994, APCI was criminally fined $75,000, and a federal judge ordered APCI dissolved during its three years of probation. The sentencing Judge told the court that D'Lorenzo would "pay dearly" for his crime and then sentenced him to five years in prison and fined him $75,000.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

BAILEY HYDRAULICS, ET AL
Parts Distributor
Roanoke, Texas

BAILEY HYDRAULICS (BAILEY) was a parts broker which specialized in hydraulic fittings for the aviation industry. In June 1990, the former BAILEY quality control manager approached the FAA and was referred by the FAA to the OIG. The former manager related that BAILEY, at the direction of its president, Thomas Weldon Bailey, purchased hydraulic fittings designed for non-aviation applications, altered markings on these fittings, had some replated to resemble parts authorized for use in aviation applications, and then sold them as aviation quality fittings. The FAA had visited BAILEY concerning a complaint. According to the former quality control manager, he and others systematically purged company records which showed that Thomas Bailey and other sales persons had ordered the substitution of inferior parts. These purged records were hidden by Thomas Bailey in a disused out building. The OIG obtained a search warrant and discovered this and other evidence. The investigation also included identifying suspect sales and testing suspect parts.

On October 6, 1993, a federal grand jury indicted Thomas Bailey, four other company officials, and the corporation on charges of conspiracy, wire fraud, and mail fraud, in a scheme to market substandard hydraulic fittings as aviation parts. The parts sold in this scheme could be used in systems to control landing gear and control surfaces. Failure of these parts in flight could have catastrophic consequences. These defendants pled guilty to either conspiracy or misprision. On February 13, 1995, Thomas Bailey was sentenced to 27 months incarceration, followed by three years supervised release. The four other BAILEY officials received a total of six years incarceration, ten years probation or supervised release, and additional fines. The corporation is now defunct.

For his part, the former BAILEY quality control manager who provided the information that initiated the investigation pled guilty to conspiracy to commit mail fraud and making false statements. He was sentenced to two years probation and fined $1,000. At sentencing, the presiding Judge thanked the former manager for coming forward but refused to dismiss the fine because he felt this crime had threatened the traveling public which has a right to expect safe and well-maintained aircraft.

The FAA issued a general aviation airworthiness alert concerning BAILEY's marketing of altered hydraulic fittings on November 28, 1990.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

CHROMALLOY GAS TURBINE CORPORATION/
CHROMALLOY RESEARCH AND TECHNOLOGY
FAA-Certified Repair Station
Orangeburg, New York

CHROMALLOY GAS TURBINE CORPORATION/CHROMALLOY RESEARCH AND TECHNOLOGY (CHROMALLOY) is a major FAA-certified repair station which conducts repairs of jet engine parts. In October 1993, James Simpson, a CHROMALLOY General Manager, pleaded guilty to a charge of defrauding airlines by directing CHROMALLOY employees to spray graphite on jet engine blades and vanes in order to conceal defects in the repair of the parts. In February and April 1995, two CHROMALLOY Executive Vice Presidents, James Gabriel and Gerard Vitti, respectively, were also indicted for falsely representing that a Low Pressure Turbine (LPT) Case repaired by CHROMALLOY for Qantas Airlines was properly repaired and suitable for return to service when in fact the LPT Case was too thin, improperly welded, and cracked. An LPT Case is a containment vessel for jet engine air foils. Gabriel was also charged with obstructing justice by sending a misleading fax concerning the repair to a CHROMALLOY representative in Australia in order to induce the representative to give false testimony before a grand jury.

Gabriel and Vitti were also charged with defrauding numerous commercial airline customers by falsely representing that bearing seals had been properly repaired, when the bearing seals were improperly repaired with an incorrect weld wire. Gabriel was also charged with overseeing and directing CHROMALLOY employees to spray graphite on engine blades and vanes in order to conceal the true quality and appearance of the coating which CHROMALLOY had applied to those parts. Trial is pending.

CHROMALLOY entered into a Consent Order with the FAA agreeing to implement structural, management, and policy reforms. CHROMALLOY also agreed to cease all aircraft engine repair work. The FAA has since monitored and progressively, over time, requalified CHROMALLOY for certain repairs. As a part of this agreement, CHROMALLOY paid the FAA a record remedial payment of $5,000,000. An additional $5,000,000 was placed in a Department of Justice escrow account to cover costs of testing parts and other investigative functions.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

CLASSIC AVIATION, INC.
Parts Distributor
Miami, Florida

AIR ADVANTAGE SYSTEMS, INC.
FAA-Certified Repair Station
Miami, Florida

This investigation was initiated in May 1991 based upon a referral from the FBI that CLASSIC AVIATION, INC. (CLASSIC) fraudulently overhauled and repaired aircraft components, certified them as meeting manufacturer's specifications, and then marketed them as legitimate items.

Investigation revealed that CLASSIC provided FAA-certified repair stations with subspecification parts to be assembled into complete units and certified as airworthy. CLASSIC conspired with AIR ADVANTAGE SYSTEMS, INC. (AIR ADVANTAGE), among others, to fraudulently repair and overhaul aircraft starters, generators and constant speed drives and certify them as meeting original equipment manufacturer's specifications.

This investigation resulted in the prosecution of four individuals including two officials of CLASSIC AVIATION and two officials of AIR ADVANTAGE, including its former owner.

On January 11, 1994, a CLASSIC official pled guilty to a charge of wire fraud. On March 10, 1994, he was sentenced to two years incarceration and three years supervised release.

On August 9, 1994, the owner of CLASSIC AVIATION was charged with five counts of conspiracy to commit wire fraud and false statements. He was tried in November 1994 and the jury found him guilty of all counts. In January 1995, he was sentenced to 33 months incarceration followed by three years supervised release. He was also ordered to pay a $6,000 fine.

In November 1993, one official of AAS was indicted for false statements. He pled guilty and was sentenced to 15 months incarceration, a $3,000 fine, and two years supervised release. The main AIR ADVANTAGE defendant was indicted on one count of conspiracy. He subsequently entered a plea of guilty and was sentenced to 27 months incarceration followed by three years supervised release.

In July 1992, the FAA issued an Airworthiness Directive requiring all aircraft operators to remove from service certain starters distributed by CLASSIC.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

COAST-TO-COAST AIR, INC.
Parts Distributor
Winston-Salem, North Carolina

This investigation was conducted during the period June 1991 to January 1994. It was predicated upon information developed during a separate investigation of a companion company, that COAST-TO-COAST AIR, INC. (COAST-TO-COAST) conspired with various FAA-certified air repair stations to launder and fraudulently certify unapproved aircraft parts as airworthy for return to normal service.

During the investigation of COAST-TO-COAST, various components, particularly starters and constant speed drives, which had been overhauled by COAST-TO-COAST and certified as airworthy, were obtained from two major air carriers and tested by the Original Equipment Manufacturers. The testing found that the components contained unapproved parts and had not been overhauled in accordance with manufacturer's specifications. Additionally, the certifications which accompanied the components bore a photocopy signature of an FAA-licensed airframe and powerplant mechanic who, in fact, had not inspected or certified the parts.

In September 1993, COAST-TO-COAST's president, pled guilty on behalf of the company to a one-count felony charging COAST-TO-COAST with providing a falsified material certification to an air carrier in order to sell an aircraft part. In January 1994, the company was sentenced to a $350,000 fine, a $200 special assessment and 5 years probation.

The investigation also disclosed that COAST-TO-COAST supplied parts to the FAA for the FAA's own fleet of airplanes. The investigation remains in an open status pending the results of our request to FAA that COAST-TO-COAST be debarred from doing further business with the federal government.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

D & G AIRLINE SERVICES
Parts Distributor
Chatsworth, California

HENSON AVIATION SERVICES
Parts Distributor
Newberry Park, California

FAGAN, RUSSELL O.
FAA-Licensed Mechanic
Porterville, California

Investigation disclosed that D&G AIRLINE SERVICES (D&G) and HENSON AVIATION SERVICES, Inc. (HAS) were separately involved with an FAA-licensed mechanic in a scheme to facilitate the sales of untraceable parts to various U.S. airlines in violation of FAA regulations. The mechanic, Russell Fagan, was paid a monthly fee by both Dale Galbreath, CEO, D&G, and Don S. James of HAS to sign blank airworthy certificates. D&G and HAS would fill in the blank signed certifications with a part name and number and send the false certification with parts sold to various customers to fool them into believing the parts were legitimate.

Parts were purchased by Northwest Airlines, TWA, Hawaiian Airlines, and various FAA licensed repair stations. All purchasers were notified of the indictment and circumstances and took appropriate action to track down the suspect parts or place them in quarantine. Parts sold included aircraft engine pistons, solenoids and various component parts of aircraft. Tracking many of the component parts is impossible, according to the airlines, because there is no serial number or record of where they were installed.

Galbreath, Fagan and James all confessed and were indicted on felony charges of making false statements to the Federal Government, on October 1, 1994, December 9, 1994, and February 13, 1995, respectively. Galbreath was sentenced December 7, 1994, to 36 months probation and fined $10,000. Fagan was convicted December 12, 1994. Further judicial action on Fagan and James is pending.

The judge in this case expressed his grave safety concerns. He requested information on what steps had been taken by the OIG and the FAA to reduce the threat of accident. The judge was told that the OIG provided the above information to the FAA concurrent with the investigation and the FAA issued an Emergency Order of Revocation of Fagan's Powerplant Mechanic Certificate.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

DFW AVIATION SALES, INC.
Parts Distributor
Dallas, Texas

This investigation was based on a complaint from the owner of Jorikah's Air Service, Hamburg, Germany, that DFW AVIATION SALES, INC. (DFW), a Dallas based aircraft parts broker, sold several engine turbine disks with fraudulent certifications and disk identifying data which concealed the fact that these disks were salvaged from an aircraft which crashed in South America. The disks were part of the jet engine turbine assembly used on Boeing 737s and other jet aircraft.

In 1992 DFW sold four such disks to Aerothrust Corporation of Miami, Florida, an FAA-Certified Repair Station. Through checks with the manufacturer, Pratt & Whitney (P&W), Aerothrust learned that the disks in question had been salvaged from the engines of a Varig Airlines Boeing 737 which crashed in Brazil in September 1989. In May 1993, P&W recommended that Aerothrust remove the suspect turbine disks from service and render them unusable.

In 1992 Jorikah negotiated with DFW to purchase ten disks, nine of which were ultimately shown to be from the crash. The sale price for the nine disks totaled $138,000.

On May 12, 1994, and on May 18, 1994, pursuant to a plea agreement, Dennis Brett, the owner of DFW Aviation Sales, was charged with one count of fraud by wire in Dallas, Texas. Brett pled guilty and on August 25, 1994, was sentenced to five months imprisonment, followed by five months in a half way house, followed by two years supervised release, and fined $4,000. Assistant United States Attorney Phil Umphres, who handled the prosecution, was quoted by the Dallas Morning News as saying that "these parts had no business being in the air." The Morning News article further indicated that United States Attorney Paul Coggins said that his office had been working for several years with the Federal Aviation Administration and the Department of Transportation to prosecute people who sell counterfeit or substandard parts.

On April 29, 1994, the FAA issued a Flight Standards Information Bulletin for Airworthiness regarding the Varig Airlines engine turbine disks.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

DUSCHAK INTERNATIONAL HELICOPTERS, INC.
FAA-Certified Repair Station
Torrance, California

In October 1989, the FAA referred a complaint from a former Bell Helicopter employee that a local "scrap" merchant was selling helicopter rotor blades with no serviceable life left on them, to Bradford and Gregory Duschak, doing business as DUSCHAK INTERNATIONAL HELICOPTERS, INC. The complaint indicated that the Duschak's were selling these same rotor blades as serviceable with accompanying historical service records reflecting useful time remaining. Investigation disclosed that the Duschak brothers were marketing these "timed out" rotor blades for installation on FAA certificated aircraft. Aircraft design engineers place service time ceilings on some critical parts, including rotor blades, to insure that they are taken out of service before age, stress, and fatigue, cause the parts to fail in flight. The loss of a main or tail rotor during the flight of a helicopter is described as catastrophic. As part of their scheme, the Duschak brothers changed serial numbers of rotor blades, including data plates purporting to be those of Bell Helicopter, to aid in their marketing of these "timed out" parts.

On September 23, 1991, both Duschak brothers agreed to plead guilty to a charge of affixing "counterfeit" Bell Helicopter markings on timed out blades. On September 21, 1992, both Duschak's were sentenced. Bradford Duschak was fined $29,070, sentenced to ten months imprisonment, followed by three years supervised release. Gregory Duschak was fined $15,000, sentenced to six months imprisonment, followed by three years supervised release. In a September 24, 1992 article, the Los Angeles Times quoted Assistant United States Attorney Yvette Palazuelos as saying, "The judge was deeply concerned about this case, and very upset from the beginning." "We're all hoping that nothing falls from the sky...and that no injuries or deaths occur because of what these brothers did."

In October 1989, the FAA issued an airworthiness directive concerning the suspect blades. On December 15, 1989, the FAA issued an Emergency Revocation Order against the Duschaks' repair station certificate.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

EQUIPMENT AND SUPPLY, INC.
FAA-Certified Parts Manufacturer
Monroe, North Carolina

This investigation was conducted jointly with the Department of Defense OIG from August 1991 through November 1994. It was based on information that EQUIPMENT AND SUPPLY, INC. (ESI), a DOD contractor, had falsified test reports and substituted products on DOD contracts.

Investigation revealed that ESI, an aircraft parts manufacturer and supplier, sold unapproved aircraft parts, particularly "O" rings, and helicopter main blade retainer bolts, in the commercial aviation market without parts manufacturer approval from the FAA. Additionally, ESI provided kickbacks to a LOCKHEED CORPORATION employee.

In September 1993, ESI pled guilty to conspiring to make false statements and to pay kickbacks to a prime contractor to the United States. In January 1994, ESI was sentenced to a fine of $40,000.

ESI corporate officials entered into a 12 month pre-trial diversion agreement. In December 1994, ESI paid $1.25 million to settle all civil issues arising from the investigation.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

FASTENER AND COMPONENT CONNECTIONS, INC.
Parts Distributor
Wayne, New Jersey

This case began in 1991 as a joint undercover task force investigation based in Philadelphia, Pennsylvania, consisting of DOT/OIG, FBI, Department of Defense OIG, and the Air Force and Navy criminal investigation units. Undercover purchases of aerospace fasteners were made from FASTENER AND COMPONENT CONNECTIONS (FCC). The parts were tested and many of the parts failed testing despite FCC's certificates of conformance for the parts.

Investigation disclosed that Douglas Rofheart, an owner of FCC, ordered ordinary commercial fasteners and sold them as government specification parts. On occasions, when customers ordered parts which required cadmium plating, that is, a corrosion-resistant plating which has a distinctive yellow color, Rofheart supplied zinc parts and had them dipped in a yellow coating to make them appear to be cadmium plated. In February 1994, Rofheart was charged with one count of Mail Fraud for distributing the bad parts.

This investigation also provides evidence of another dimension of the criminal element operating in the aviation parts industry. During the course of analyzing records seized from FCC, the DOT/OIG identified bribes being paid by Rofheart to employees of a government prime contractor, SAFT AMERICA COMPANY (SAFT) of Valdosta, Georgia. As a result, the investigation was expanded beyond SUPs distribution and disclosed not less than eight companies involved in paying bribes and kickbacks to employees of the purchasing department of SAFT in order to receive contracts from SAFT. SAFT produces aircraft batteries for direct and indirect contracts with the USCG, DOD, and commercial aviation, totaling about $20 million in aviation sales per year. Twenty-one (21) individuals and corporations were indicted and 18 either pled guilty or were found guilty of violating the Anti-Kickback Act.

Douglas Rofheart of FCC was eventually charged for both the fraudulent distribution of SUPs and for paying kickbacks to SAFT. FCC's co-owner, Harry Rutan was also charged with bribery. Rofheart and Rutan were each sentenced to ten months of incarceration, fined $25,000 and given three years of probation for the bribery charges. Rofheart received an additional seven months incarceration for the SUP distribution charge. FCC was debarred for three years by the DOD. In a separate civil settlement with the U.S. Attorney's Office, FCC paid a fine of $80,112.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

LEO D. FIELDS COMPANY
Parts Distributor
Buena Park, California

This investigation was based on information disclosed during an investigation conducted by a Task Force based in Philadelphia, Pennsylvania, consisting of DOT/OIG, FBI, Department of Defense OIG, and the Air Force and Navy criminal investigation units. The investigation included an undercover operation fronting as a distributor of aerospace fasteners.

During this investigation, undercover purchases of government specification fittings for use in aircraft were made from the LEO D. FIELDS COMPANY (FIELDS). Because fittings are often used in critical applications such as weapons systems, aircraft, aerospace, and submarines, all purchases by the undercover business were made with the understanding that FIELDS would supply products which met all government specifications. Each of the sales by FIELDS to the undercover operation were accompanied by certificates of conformance which stated that the products met all specifications and that complete physical and chemical reports were on file. Independent testing of the purchased parts resulted in substantial failures. As a result, in August 1992, a search warrant was executed on the company. The records obtained during the search warrant were reviewed and disclosed that FIELDS was purchasing surplus parts from various vendors, that these parts were substandard, and that no test reports existed as certified by FIELDS. Some of FIELDS' customers included Lockheed, Boeing and McDonnell Douglas.

On February 10, 1994, Charles Redmond, General Manager of FIELDS, was charged by a federal grand jury with four counts of wire fraud for the false misrepresentations made via a facsimile machine to its customers. On March 22, 1994, the Defense Logistics Agency suspended FIELDS and Redmond from all government contracts. On April 1, 1995, Redmond pleaded guilty to two counts of wire fraud and is awaiting sentencing. Redmond faces up to ten years in prison and/or a $500,000 fine.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

GARY AEROSPACE
FAA-Certified Repair Station
Hondo, Texas

JLM AVIATION INTERNATIONAL
Parts Distributor
Naperville, Illinois

This investigation was based on information provided to the OIG in January 1993, by a San Antonio FAA Flight Standards District Office Inspector, that GARY AEROSPACE CORPORATION (GAC) was manufacturing "bogus" Boeing Slat Track Roller Bolt Assemblies for sale by JLM AVIATION INTERNATIONAL (JLM).

These particular parts were for Boeing 727 aircraft. Boeing ended production of the 727 in 1984 after delivering approximately 1831 of the aircraft to customers. As of 1992, the period covered by the investigation, approximately 1500 727s were still in service carrying approximately ten million passengers each month.

The Slat Track Roller Bolt Assemblies are part of the aircraft wing. The leading edge of the wing of 727s have "slats" or airfoil control surfaces which are deployed during take-offs and landings to provide the aircraft with additional lift or drag as required for flight.

Investigation by the OIG, joined subsequently by the FBI and the Department of Defense Inspector General, disclosed that GAC manufactured the suspect parts without the benefit of FAA approved engineering data, and that JLM marketed these parts. An independent testing laboratory tested the parts and determined that the parts did not meet specification. An expert consulted by the government provided an opinion that failure of this part in flight could result in a loss of control of the aircraft.

On March 8, 1995, a Federal grand jury in San Antonio, Texas, charged GAC and its principal, Arthur Stewart, and JLM and its principal, Jose Mendiola, with conspiracy to commit mail and wire fraud, and with substantive counts of mail and wire fraud, and making false statements, in connection with the manufacture and sale of these bogus parts. Trial in this matter is scheduled to begin on June 5, 1995.

In 1993 the FAA issued a Flight Safety Information Bulletin for Airworthiness to all its field activities to be on the look out for these bogus assemblies. Several of the major carriers began a fleet inspection campaign to locate and remove these suspect parts from service. JLM, the broker who ordered the manufacture of this part and was responsible for its subsequent sale, falls outside the FAA's system of regulatory enforcement.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

LAWRENCE ENGINEERING & SUPPLY, INC.
Parts Manufacturer (Fasteners)
Burbank, California

A July 31, 1988, article in the San Jose Mercury News referred to a letter from then-NTSB Chairman Jim Burnett to Congress stating that in 61 airplane accidents from 1984 to 1987, "failures or suspected failures" of fasteners were involved. The Chief Assistant United States Attorney in San Jose asked the DOT/OIG to join an ongoing Department of Defense (DOD) investigation of LAWRENCE ENGINEERING & SUPPLY, INC. (LESI), Burbank, California, a manufacturer of National Aerospace Standard (NAS) fasteners used in critical DOD applications. Investigation disclosed that LESI reduced its manufacturing costs by eliminating certain quality assurance (QA) procedures, including testing. A search warrant disclosed that instrumentation needed to test parts was covered by dust, was not calibrated and appeared unused. The QA Manager, Gary Richard Davidson, and Manager, Ramon Ralph Smith, confessed to faking test data, selling surplus reworked fasteners and falsely certifying that all parts shipped were tested in accordance with and met NAS and military specifications. LESI personnel also altered certifications from other distributors. The substandard bolts obtained from both foreign and domestic sources were used in critical applications by civilian airliners, the space shuttle, military aircraft, satellites, booster rockets, nuclear missiles, and tanks.

A 33-count indictment was filed February 23, 1989, charging LESI, Ramon Ralph Smith and Gary Richard Davidson with a wide-ranging conspiracy to supply substandard fastener bolts to the aerospace industry. They were convicted April 1, 1991. On the same date, Davidson was sentenced to five years probation, 1200 hours community service and fined $25,000, and Smith was sentenced to three years probation, 600 hours community service and fined $5,000. (Smith's sentence was mitigated because of severe medical problems.) LESI was placed on three years probation, fined $300,000 and ordered to make restitution of $350,000.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

M-F SERVICES, INC.
Parts Distributor
Arlington, Texas

This investigation was opened in 1991 based on information disclosed during an investigation conducted by a Task Force operating in Philadelphia, Pennsylvania, consisting of DOT/OIG, FBI, Department of Defense OIG, and the Air Force and Navy criminal investigation units. This investigation included an undercover operation fronting as a distributor of aerospace fasteners.

During the investigation, undercover purchases of aerospace fasteners were made from M-F SERVICES, INC. (M-F). The fasteners were accompanied by certifications of conformance by M-F. The fasteners were tested by independent laboratories and virtually all of the products failed. M-F's customers included the DOD, the U.S. Coast Guard aviation repair station in Elizabeth City, North Carolina, and government prime contractors, namely Boeing, McDonnell-Douglas, General Dynamics, and Bell Helicopter. M-F purchased commercial grade fasteners, many from foreign countries, and M-F's president, Bruce Hutson, caused employees in the company's quality control department to falsify certificates of conformance which falsely stated that the fasteners had been produced, sampled, tested, and inspected in accordance with the specifications, and that the product met all of the government specifications. Evidence gathered during the lengthy investigation established that Hutson not only required employees in the quality control department to take shortcuts in their inspections of parts, but at times, also ordered the employees to permit parts to be shipped to the government which had failed even their own minimal inspections.

In February 1994, M-F and Bruce Hutson were indicted on 11 counts of mail and wire fraud. On January 25, 1995, M-F and its president, Hutson, each pleaded guilty in the Eastern District of Pennsylvania to one count of conspiracy. On May 2, 1995, the Judge sentenced Hutson to four months of incarceration, fined him $10,000, and ordered him to three years supervised probation. M-F was also fined $10,000. In a separate civil agreement, M-F was required to pay a civil fine of $170,000. M-F and Hutson have been indefinitely suspended from all government contracts by the Defense Logistics Agency.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

MORSE AERO, INC.
FAA-Licensed Mechanic
Utica, New York

Robert E. Morse, owner of MORSE AERO, INC., was an aircraft mechanic who had held FAA Inspection Authorization (IA). Morse had purchased helicopters from the Washington, DC, Metropolitan Police Department (MPD), for rebuilding and sale. The investigation initially centered on a Bell 47G helicopters, rebuilt and sold by Morse which experienced vibration while in flight. A subsequent check of the helicopter at a different repair shop determined the main rotor blade was an unapproved part. A piece of one of the main rotor blades had been spliced on, which is an unauthorized repair for this part. The repair shop contacted the FAA, which notified the OIG.

Investigation revealed that Morse had falsified records which represented the total aircraft service time and the time-in-service of certain life-limited components, including tail rotor blades, drag braces, and scissor assemblies, and had falsely certified two helicopters as airworthy. The MPD helicopters were sold to Morse with detailed historical records. Morse informed one of his customers, and the OIG, that he had thrown away those original records, and created his own replacement records. However, the DOT/OIG discovered the original records during the execution of a search warrant at MORSE AERO, INC. A comparison and analysis of the MPD records with those Morse originated revealed discrepancies in many of the time-in-flight records.

Morse was indicted in June 1993 for falsifying the helicopter logbook entries. In October 1993, Morse was convicted on all seven counts by a jury trial in Albany, New York. In December 1993, Morse was sentenced to 14 months imprisonment. Morse appealed the sentence as too harsh, but the Court of Appeals ruled that a "reckless risk of serious bodily injury" supported a greater sentence, noting:

> "The evidence was that Morse prolonged life-limited helicopter components beyond their scheduled (time) by falsifying logbooks and falsely certifying two helicopters airworthy. As the district court noted; unsafe aircraft (endanger) not only their operators and passengers 'but also anybody who may be on the ground' in the vicinity of a crash...Here there existed even a heightened danger to those on the ground, for Morse sold one of his helicopters to a person who not only flew it for himself but also gave rides and demonstrations at an airshow."

The FAA revoked Morse's FAA Airframe & Powerplant certification and Inspection Authorization.

**U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary**

NORCAL SUPPLY CO., INC.
Parts Distributor
San Leandro, California

This investigation was based on information from a major U.S. airline and various government contractors and was conducted jointly by the DOT/OIG, FBI, NASA/OIG, and Department of Defense/OIG. Investigation disclosed that NORCAL SUPPLY COMPANY, INC. (NORCAL) purchased surplus and commercial grade fasteners, reworked them, in as much as they cut, drilled and sent them out for plating, thereby becoming the "manufacturer." Following the reworking of the commercial grade fasteners, they sold them to Department of Defense Contractors and U.S. Airlines for use in critical applications without further testing or quality assurance procedures and provided them for aerospace use with false certifications that the fasteners were National Aerospace Standard (NAS) parts.

On October 18, 1994, NORCAL and its owner, Samuel Johnstone, were indicted on felony counts of making false statements to the Federal Government, Conspiracy and mail fraud. The charges involved sales of bogus bolts to buyers that included the National Aeronautics and Space Administration, several Department of Defense contractors and a certified FAA repair station authorized to repair and overhaul parts used in commercial jetliners. A trial date has not been set.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

OMNI MACHINE CORP., ET AL
Parts Manufacturer
Whittier, California

This investigation was based on information received in November 1982 that OMNI MACHINE CORP. (OMNI) was manufacturing bogus McDonnell Douglas aircraft parts, in that the parts did not meet McDonnell Douglas' FAA approved engineering data and specifications. The DOT/OIG furnished this information to an ongoing investigation by the FBI and the Department of Defense OIG in Richmond, Virginia, and Los Angeles, California. Investigation disclosed that Carlos Del Toro of AVION SPARES, George Lisenko and Danny Rudd of OMNI, and James Daniele of D&D, all of Southern California, were each manufacturing and/or marketing various counterfeit McDonnell Douglas parts, manufactured without benefit of FAA approved engineering data or an FAA approved quality inspection system. OMNI primarily manufactured bushings and bearings which it sold commercially and to the Department of Defense for use in a variety of aircraft.

On February 8, 1995, United States Attorney Helen Fahey announced that the defendants had been sentenced pursuant to plea agreements in this matter. D&D pled guilty to one count of violating the RICO statue (Racketeer Influenced & Corrupt Organization Act). D&D was ordered to pay a fine of approximately $2.9 million resulting from the sale of inventory not subject to forfeiture, and the government proceeded with forfeiture action against property valued at about $12.9 million. James Daniele was fined $266,711 and sentenced to 30 months imprisonment in exchange for a plea to one count of the RICO statute. Rudd was sentenced to seven months imprisonment and fined $5,000 in exchange for a plea to one count of wire fraud. Lisenko was sentenced to six months imprisonment and fined $5,000 in exchange for a plea to one count of wire fraud. On January 12, 1995, Del Toro pled guilty to one count each mail fraud and wire fraud. His sentencing has been scheduled for June 5, 1995. Effective March 17, 1995, the Defense Logistics Agency suspended, and proposed debarment of Lisenko, Rudd, and OMNI. Fahey, quoted in the Richmond Times-Dispatch, said the defendants and others like them "jeopardize the safety of the airline industry and are motivated purely by greed."

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

ONTARIO AIR PARTS, INC.	DIXON AIRCRAFT COMPONENTS
Parts Distributor	**FAA-Certified Repair Station**
Fontana, California	**Oxnard, California**

This investigation resulted in two separate prosecutions in a similar scheme involving jet engine combustion liners. OIG investigation disclosed that ONTARIO AIR PARTS, INC. (OAP) purchased unapproved Chinese-made jet engine combustion liners, then sold and certified that the liners were approved and manufactured by General Electric. OAP sold the parts as both FAA approved components and GE manufactured military components. Some sales were made to the Turkish Air Force. Two Turkish F-5 fighters which contained the suspect parts sustained failures in flight with less than 300 hours of operation. The engines failed because the combustion liner was made of the wrong material. Also, a row of cooling holes which are present on bonafide GE liners were not present on the counterfeit liners. These liners were quickly removed from all U.S. civil aviation aircraft engines, ensuring there were no U.S. failures. After being indicted on charges of conspiracy and mail fraud, the company and two officers of the company were convicted and sentenced on October 1, 1994. James Fishback, President, was sentenced to six months confinement, five years probation and $20,050 in fines and assessments. Earlene Christenson, General Manager, was sentenced to home detention, three years probation and $15,050 in fines and assessments. OAP was sentenced to $250,600 in fines and assessments and five years probation.

DIXON AIRCRAFT COMPONENTS (DAC) purchased scrap military exhaust diffusers for the Avco Lycoming Textron T-53 turbine engine. One of the functions of the diffuser is to support the turbine shaft in the rear of the engine. **The exhaust diffuser is a highly critical part which must conform to rigid standards.** DAC then sent a proposal to Avco Lycoming Textron to modify the type of diffuser it had purchased to a new part number which is used on civilian aircraft. DAC proposed drilling a hole and welding in an area where welding was prohibited on the exhaust diffuser. Avco Lycoming Textron informed DAC that the modification it had outlined would not be approved, because it posed a safety risk in that it could compromise the structural integrity of the turbine shaft support. DAC performed the modification against the advice of Avco Lycoming Textron, then cleaned the diffusers and sold them as "factory new", implying the diffusers were fresh from the factory and had never been used. DAC also conducted experiments on the Pratt and Whitney PT-6 turbine engine combustion liners, modifying them and reselling them. Rudy Dixon, DAC's owner, cooperated with the Government's investigation. He was convicted and sentenced on November 14, 1994, to five years probation.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

POLARIS INVESTORS AND TRADING CORP.
Parts Distributor
Long Island, New York

This investigation was based on information from Pratt & Whitney (P&W) supplied to the FAA and subsequently referred to the OIG. A mechanic for United Airlines in California noticed a discolored P&W engine part. United Airlines returned the part to P&W where it was determined that the part was in fact not a P&W part.

As a result of five search warrants executed in Connecticut, Virginia, and Long Island, the investigation disclosed four types of counterfeit JT8D and JT9D P&W engine parts had been produced, including 133 spacers, 649 tie-rod bushings, 700 seal rings, and an unknown quantity of rear-hub bushings. Investigation disclosed that Gary Shafer, President of POLARIS INVESTORS AND TRADING CORP. (POLARIS), contracted with another company to manufacture 25 replica P&W JT8D jet engine spacers and subsequently represented to third parties that the spacers had been manufactured by P&W. Some of the spacers were eventually sold to U.S. carriers, including United Airlines and USAir. Packaging for the parts were also counterfeited. For example, one counterfeit P&W label showed the P&W eagle flying down instead of up.

In February 1993, Shafer was indicted by a federal grand jury in the Eastern District of New York on seven counts of intentionally trafficking in counterfeit aircraft engine goods (spacers, seal rings, tie-rod bushings, rear-hub bushings) and knowingly using P&W counterfeit markings on the goods and packaging.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

RAMCO AMERICAN INTERNATIONAL, INC.
Parts Distributor
Mahwah, New Jersey

This investigation was based on a SUP notice in October 1992 indicating that Kiwi International Airlines, Newark, New Jersey, had been supplied substandard Boeing 727 wheels by RAMCO AMERICAN INTERNATIONAL INC. (RAMCO), including certifications which represented that the wheels had been repaired in accordance with FAA regulations. Subsequent examination of the wheels established that they did not meet the load capacity requirements for Boeing 727s. The investigation was conducted by the DOT/OIG, the U.S. Postal Inspection Service, and the FAA.

Investigation disclosed that RAMCO illegally manufactured and/or sold substandard airplane parts (wheels, bolts, aviation gaskets) to commercial airlines without FAA approval. In May 1993, a search warrant was executed at RAMCO. The evidence seized included gaskets which were subsequently tested and failed government specifications. Expert testimony during the resultant trial established that the counterfeit gaskets (purported to be Pratt & Whitney Part #697259) were of inferior quality and could create an oil fire in the JT8 jet engine. That engine is used in Boeing 727s and 737s, and McDonnell-Douglas DC-9s. The investigation further determined that RAMCO manufactured many different types of aviation gaskets without an FAA Parts Manufacturer Approval (PMA), through a shell corporation, known as AMCORP, located on the same premises as RAMCO. Both companies were owned and operated by Dominic and Mary Ann Rvocco (husband-wife).

In May 1994, indictments were filed against the Rvoccos charging them with 18 counts of mail fraud and conspiracy. The indictment specifically noted customers such as Continental Airlines, Philippine Airlines, Aer Lingus Airlines, among others, as having been defrauded by the Rvoccos. In June 1994, a RAMCO quality assurance employee was also charged with conspiracy. He cooperated, pled guilty, and was sentenced to three years probation and fined $2,000. On November 22, 1994, Dominic Rvocco was found guilty on all charges by a trial jury. His wife was acquitted of all charges. Dominic Rvocco will be sentenced on June 1, 1995.

The OIG case agent and Postal Inspector were each presented a commendation award commemorating National Victims' Rights Week for their work on this investigation. In presenting the award, United States Attorney Faith Hochberg emphasized that the excellent work devoted to the investigation may potentially save thousands of lives and, thus, prevented the traveling public from becoming victims.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

RICE AIRCRAFT, INC.
Parts Distributor
Long Island, New York

RICE AIRCRAFT, INC. (RICE) was involved in a scheme to counterfeit aerospace fasteners, falsification of aerospace fastener testing documentation, and payment of kickbacks to various suppliers and customer representatives. RICE counterfeited aerospace fasteners by having the parts secretly stripped and replated or re-lubricated at a facility which RICE customers had not approved as a manufacturing source. Original manufacturers' processes and testing requirements, as well as certain military specifications designed to avoid or detect hydrogen embrittlement in cadmium-plated parts, were not followed in reprocessing certain fasteners. Bruce J. Rice, the chief executive officer, also caused certain reprocessed parts to be delivered with forged manufacturers' test reports. The parts were sold throughout the international aerospace industry to the United States Government, Airbus, British Aerospace, Grumman, Sikorsky, Martin Marietta, Boeing Vertol, Republic (Fairchild), and the Government of Israel as well as to various airlines including Air France, United Airlines, Varig, TWA, American Airlines and Pan Am. Some of the parts were purchased for various military aircraft.

Federal criminal charges were filed August 16, 1989, in Seattle, Washington, against RICE, Bruce Rice, and Richard K. Ohlman (an agent for Rice), for conspiracy to commit mail fraud, wire fraud, commercial bribery, and defrauding the IRS. Charges were also filed against John J. Rockwood and Richard Watson (former employees of Boeing). All were convicted. RICE was sentenced to a $50,000 fine, three years probation and ordered to pay $1,000,000 in restitution. Bruce Rice was fined $750,000, sentenced to four years confinement and three years probation. Watson was fined $18,257, sentenced to five months confinement and three years probation. Rockwood was fined $20,154, sentenced to five months confinement and three years probation. Ohman was sentenced to six months confinement, 200 hours community service and one year probation.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

R.S.B.I. AEROSPACE, INC.
Parts Distributor
Blue Springs, Missouri

This investigation was initiated in 1992 based on a request from the Bureau of Alcohol, Tobacco and Firearms to assist in the investigation of a suspected arson which destroyed R.S.B.I. AEROSPACE's (R.S.B.I.'s) warehouse containing aircraft parts. It was alleged that a large portion of the parts were removed from the warehouse prior to the fire.

The investigation quickly determined one of the principals of R.S.B.I., John Campbell, was the brother of Daniel Campbell, owner of K.C. AEROSPACE. Daniel Campbell was previously convicted and sentenced for fraudulently selling aircraft parts with false documentation in an earlier FBI investigation. The investigation further disclosed that R.S.B.I. employees were bribing airline personnel to possibly purchase substandard, and/or falsely documented, aircraft parts. The investigation also indicated involvement of an "Organized Crime" figure in the Kansas City area. The prosecution was handled by the U.S. Attorney's Office in Kansas City, Missouri.

This investigation is ongoing. Four individuals have been indicted, convicted, and sentenced in the commercial bribery scheme. One individual has been indicted for the arson and commercial bribery scheme. This investigation is significant in that it has indicated that bribery of airline purchasing agents to possibly purchase substandard, or questionable, aircraft parts is another dimension of the criminal element operating in the aircraft parts business.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

SENTINEL AVIATION CORPORATION
FAA-Certified Repair Station
Davie, Florida

This investigation was conducted from July 1990 through November 1992. It was based upon allegations from the FBI that SENTINEL AVIATION CORPORATION (SAC) was laundering stolen aircraft parts and overhauling them without authorization/certification from the FAA.

Investigation revealed that SAC purchased the assets of another repair station and illegally used that repair station's certification number to overhaul aircraft parts. Subsequently, the FAA requested that SAC recall all parts they overhauled and returned to service.

In this case, the parts which came under investigation were starters for aircraft engines. Inspection of nine of these engine starters disclosed that eight were unairworthy. The FAA filed sanctions against SAC totaling $115,000 for operating a repair station without certification and failing to return aircraft parts to their original condition. Work orders obtained during the investigation served as evidence that five of SAC's corporate officials knowingly certified overhaul of aircraft parts without authorization from the FAA.

In July 1991, the five corporate officials were indicted on charges of conspiracy and falsely certifying to the repair of aircraft parts. They all pled guilty to conspiracy to make false statements. In May 1992, SAC's president was sentenced to six months in prison, three years supervised release, and a $50 special assessment. The four remaining defendants each received the same sentence of four years probation, a $1,000 fine, and a $50 special assessment.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

EUGENE SHANKS, DBA FLITELINE MAINTENANCE
FAA-Licensed Mechanic
Wharton, Texas

This investigation was based on information referred to the OIG in December 1992 by the FAA Assistant Chief Counsel in Kansas City, Missouri. The FAA had determined that agricultural aircraft (crop dusters) in Kansas and Louisiana had been modified by Eugene Shanks in violation of FAA regulations, and that Shanks had introduced a suspect propeller pitch control cam (PPC cam) into each of the respective aircraft propeller control units. In the Louisiana case, an operator's aircraft crashed, killing the pilot.

OIG investigation disclosed that Shanks had contracted the construction of about 49 of these "bogus" PPC cams without engineering or material data approved by the FAA. On May 24, 1993, Shanks was indicted by a Federal grand jury in Houston, Texas, for endangering the safety of an aircraft in flight and for filing false engine and aircraft maintenance documents. Based on a plea agreement, Shanks ultimately pled guilty to two counts of making false statements. On May 6, 1994, District Court Judge Belinda Harmon sentenced Shanks to three years probation, 200 hours of community service, fined him $10,000, and instructed him not to work on any aircraft during the course of his probation. Part of the plea agreement required Shanks to surrender his mechanic's certificate and Repair Station certificate. During the pre-sentence investigation by the U.S. Probation Office, the FAA continued to identify aircraft on which Shanks had performed questionable modifications in violation of supplemental type certificates.

During the course of this investigation, the FAA issued a suspected unapproved parts safety alert in May 1993. On August 5, 1994, the FAA published a notice of proposed rule-making in the Federal Register concerning an airworthiness directive (AD) addressing the maintenance work of Shanks. The final AD is pending at this writing.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

SKAGGS' AERO
Underwood, Indiana

This investigation was based on information received by the OIG in 1992 that the Skaggs family was operating a Franklin Engine rebuilding facility without any FAA licensing. Allegedly, the Skaggs' were providing false documents with the rebuilt engines. This was a joint investigation with the FBI. Investigation included the execution of a search warrant during which records and rebuilt engines were seized. Investigation disclosed that the Skaggs performed unlicensed work using truck and tractor parts, and either bribed an Airframe and Powerplant mechanic to sign off on the work, or used fictitious names and certificate numbers. Robert Skaggs, Jr., who worked for SKAGGS AERO, also known as the FRANKLIN ENGINE CLUB, overhauled aircraft engines and placed FAA-required "yellow tags" on them showing the engine cylinders and certain other repairs had been performed by Richard D. Weber, an FAA-certified mechanic, when Skaggs knew that such repairs had been performed without the services of any FAA-certified mechanic.

Robert Skaggs, Jr., pled guilty in Indianapolis, Indiana, on May 6, 1994, to charges of making false statements and was sentenced to three years probation, $500 plus $50 in costs, and 100 hours community service. In addition, Robert Skaggs, Jr., was ordered not to be involved in aircraft maintenance or parts during his period of probation.

Daniel Skaggs also pled guilty to a charge of making false statements, and was sentenced to one year probation and $50 in costs.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

SOUTHWEST COOLERS, INC.
FAA-Certified Repair Station
Dallas, Texas

This investigation was based on the complaint of a customer of SOUTHWEST COOLERS, INC., an FAA-Certified Repair Station, which specialized in the repair of engine cooling components. The complainant, who initially contacted the FAA, advised that SOUTHWEST COOLERS was representing reworked engine cooling assemblies as new products. Investigation disclosed that SOUTHWEST COOLERS President Donald Todd had directed employees to perform cosmetic "repairs" to precooling units by using an epoxy glue to place condensing tubes in the units as opposed to performing maintenance in accordance with the specifications of the manufacturer. This "work" was then certified as being performed in accordance with FAA approved procedures, and the parts were marketed with documentation declaring that the parts were airworthy, when in fact they were not. This scheme was facilitated by the provision of false "return to service" documentation (yellow tags), without which, an operator could not lawfully install the parts on a certificated engine. During the course of this investigation, testimony disclosed that the Todd ordered employees to hide the epoxy glue used in these procedures, and mislead FAA inspectors who visited the facility on a routine basis. Pursuant to a plea agreement, Todd was charged in November 1993 with making a false statement in connection with the false yellow tags. In January 1994, he was fined $25,000, ordered to make restitution of $11,355, and imprisoned for 18 months, followed by 3 years supervised release.

In February 1994, the FAA reported the assessment of a $10,000 administrative penalty against the repair station.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

SPACE AIR SUPPLY, INC.
Parts Distributor
Oakland, California

This investigation disclosed that from February 1989 to November 1991, SPACE AIR SUPPLY, INC. (SAS) purchased commercial grade fasteners, reworked them, in as much as they cut, drilled and sent them out for plating, thereby becoming the "manufacturer." Following the reworking of the commercial grade fasteners, they sold them to Department of Defense Contractors and U.S. Airlines for use in critical applications without further testing or quality assurance procedures and provided them for aerospace use with false certifications that the fasteners were National Aerospace Standard parts. **United Airlines discovered the "bogus parts" during routine maintenance when several of the fastener heads distorted upon installation.**

The company and its president, Les Stevens, pled guilty to making false statements to the Federal Government on September 2, 1992, and were convicted on October 8, 1992. Stevens was sentenced January 1, 1993, to three years probation, a $10,000 fine, and 100 hours community service. The company was sentenced January 15, 1993, to a $10,050 fine and three years probation.

United Airlines instituted a procedure to remove the "bogus parts" purchased from SAS over the previous ten years and originally estimated the cost of the removal to exceed one million dollars. No FAA action was initiated as a result of this investigation.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

TEC-AIR SERVICES, INC.
FAA-Certified Repair Station
East Northport, New York

This investigation was based on a suspected unapproved part (SUP) notice. TEC-AIR SERVICES (TEC-AIR) employed over 40 people and had numerous aviation customers, including Continental Airlines, USAir, and Simmons Airlines. As a result of a joint investigation with the FBI and the Department of Defense OIG, which included execution of a search warrant, TEC-AIR, its two Vice-Presidents, Jack Caloras and Steven Metal, and its Production Coordinator, Domenick Leonardi were indicted, in part for a conspiracy to defraud the FAA and customers. The charged conspiracy revolves around the practice of representing that work, such as overhauls or required tests, had been performed in accordance with applicable specifications, on a variety of pieces of aircraft emergency equipment such as fire extinguisher bottles, oxygen cylinder assemblies and oxygen regulators. For example, TEC-AIR is charged with having failed to conduct hydrostatic tests of fire extinguisher bottles, despite documenting and/or stamping the bottles with a DOT stamp, indicating that the testing had been conducted. The bottles are part of the fire extinguishers placed in the engine cells and passenger and cargo compartments of airplanes, to suppress in-flight fires. Hydrostatic testing detects weaknesses which might prevent the bottle from working. The indictment also charged that TEC-AIR performed testing of smoke detectors without the required smoke chamber and that in many instances TEC-AIR did not properly overhaul equipment, such as oxygen equipment, by not installing new replacement parts as required by the applicable manufacturers' manuals, and that customers were charged for work that TEC-AIR did not perform.

TEC-AIR is also charged with falsely representing conformance with DOD specifications for its manufacture of certain military MQ1A testing devices, used for ensuring the proper operation of flight headgear equipment, such as oxygen mask, microphone and blast goggles.

TEC-AIR and its vice presidents were initially indicted on January 25, 1995 in the Eastern District of New York. Leonardi was indicted on one count of conspiracy via superseding indictment on May 10, 1995. Trial is scheduled for October 1995.

The FAA has suspended the Repair Station certificate for TEC-AIR's main facility in New York. TEC-AIR has surrendered its certificates for its branch facilities in Macon, GA, and Kent, WA.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

TRI-AIR SUPPLY
Parts Distributor
Simi Valley, California

K&K SPECIALTIES
Parts Distributor
Elizabeth Lake, California

This investigation was part of an undercover operation known as Operation BreakApart, in which DOT/OIG participated. Operation BreakApart was conducted in conjunction with agents from the FBI, Department of Defense OIG, as well as the criminal investigation units of the Navy and Air Force.

Investigation disclosed that TRI-AIR SUPPLY (TRI-AIR) sold $200,000 worth of unapproved torque-arm housing caps and unapproved slat-drive collars to commercial customers between 1990 and 1994. K&K SPECIALTIES (K&K) was involved in selling the same type of unapproved parts. Torque-arm housing caps are used to direct fluid to shimmy damper assembly in main landing gears of DC-9 aircraft. The shimmy damper assembly helps to prevent vibration of the main landing gears during take-offs and landings. The housing cap is a "safety priority category three" flight-critical part, which, according to the FAA, means that, "failure of this unapproved part and one additional failure of a backup part could have an adverse affect on safety or operating reliability."

Slat-drive collars are used to keep in place the slat-drive mechanism drums in DC-9 aircraft. These drums control the extension and retraction of the wing slats of DC-9s, thereby increasing the lift of the aircraft during take-offs. The slat-drive collar is a "safety category one" flight-critical part, meaning that the failure of the part could have "serious or possibly catastrophic consequences, and might cause the loss of the aircraft and injury to the occupants."

TRI-AIR and its owner were charged with submitting false FAA certifications in connection with sales of the unapproved parts, and both subsequently pled guilty. Sentencing is presently scheduled for August 7, 1995. Thomas J. Chestnut, dba K&K Specialties, was also charged with submitting false FAA certifications. Chestnut has agreed to plead guilty pursuant to a plea agreement with the United States.

U.S. Attorney Nora M. Manella (Central District of California) in announcing these criminal charges, said, "Fraud in the civilian aviation industry, whether involving the use of counterfeit or of fraudulently manufactured parts, poses a serious threat to air traffic safety. Companies who traffic in counterfeit or unapproved air parts undermine the efforts of the FAA to ensure the safety of the traveling public. We will continue to work with the FBI, Department of Defense and Department of Transportation, in aggressively pursuing any instances of such fraudulent activities."

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

ULTRASONIC RESEARCH AND TESTING LABORATORY
FAA-Certified Testing Facility
Dallas, Texas

This investigation was based on information referred to the OIG from an Assistant United States Attorney in Dallas, Texas. The OIG was asked to enter a joint investigation with the Air Force Office of Special Investigations and the Defense Department Inspector General to review the operations of ULTRASONIC RESEARCH & TESTING LABORATORY. ULTRASONIC allegedly certified military and civilian aircraft parts as having been tested for the presence of metal cracks and fractures, among other things, when in fact, such parts had not been tested. As a result of the investigation, the company and Taylor agreed to enter plea agreements charging conspiracy and false statements. In March 1993, the company was placed on five years probation, fined $300,000, and ordered to make restitution of $1,000,000. In April 1993, despite his extensive cooperation, Taylor was sentenced to 18 months incarceration, followed by two years supervised release.

Two ULTRASONIC customers also filed a false claim suit against ULTRASONIC, known as a qui tam action, which was ultimately settled. The terms of the total settlement of $2.3 million encompassed the fine and restitution ordered in the criminal case.

The Defense Logistics Agency took debarment action against the company, its owner, George Klein, and manager Billy Paul Taylor in January 1992, for a period of three years. As part of the global settlement, the company relinquished its FAA certification, obviating the need for FAA to take any affirmative enforcement action in this case.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

VSI CORPORATION
Parts Manufacturer
Culver City, California

This Investigation disclosed that employees of Voi-Shan Aerospace Products Group, a Division of VSI CORPORATION (VSI) were engaged in a widescale conspiracy to falsify testing of and delivery of substandard National Aerospace Standard (NAS) fasteners they manufactured. On May 9, 1990, VSI, James E. Ryan, former Quality Assurance (QA) Manager, and Aram Marderian, former Metallurgical Laboratory Supervisor, pleaded guilty in Seattle to criminal charges that they skipped required tests, falsified test results, selected "short" samples, and reworked high strength aerospace fasteners in violations of the customer's specifications. The aerospace fasteners were then shipped to the government as well as airframe and jet engine manufacturers, many of whom installed and used the parts without further testing, mistakenly placing trust in VSI's fraudulent test reports. VSI agreed to pay $18 million dollars in damages, civil penalties, criminal fines, and costs of prosecution. In total, nine individuals plus the corporation were indicted and convicted.

No FAA action is known, however the company and individuals were debarred by the Department of Defense.

U.S. Department of Transportation
Office of Inspector General
SUP Investigation Summary

WAG-AERO, INC.
Parts Distributor
Lyons, Wisconsin

This investigation was initiated on March 6, 1992, based on information from the FAA's Flight Standards Office in Lincoln, Nebraska. The FAA found that a certified aircraft had an unapproved altimeter and airspeed indicator. WAG-AERO was the supplier of these imported parts. WAG-AERO submitted false certifications to U.S. Customs indicating these parts, manufactured in China, Japan, and other countries, were FAA approved Technical Standard Order (TSO) parts.

These aircraft parts included **aircraft transceivers, altimeters, tachometers, airspeed indicators, rate of climb indicators and other aircraft instruments**. Based on documented U.S. Customs violations, a search warrant was executed at WAG-AERO's premises and about $800,000 in parts were seized, together with related business and computer records. Based on information in the seized records, FAA issued a questionnaire to 5,000 WAG-AERO customers to elicit safety related information about the sale of these unapproved parts.

On March 29, 1995, a Federal grand jury in Wisconsin returned an 11 count indictment against WAG-AERO; Richard Wagner, President; Roberta Wagner, Secretary/Treasurer; and Roger Basterash, General Manager, charging them with conspiracy to deprive the U.S. Customs Service of duties in the amount of $41,382. WAG-AERO imported 990 Japanese aircraft transceivers claiming the items had the approval of the FAA when in fact they did not. In addition, Basterash was charged with making false statements to the FAA by concealing the fact that certain altimeters sold by WAG-AERO were packaged with certificates and test reports bearing FAA Technical Standard Order numbers, when in fact the altimeters were not approved by the FAA. Investigation is complete and trial is pending.

The criminal prosecution has centered on transceivers. Aircraft transceivers are sometimes referred to as "radios" and/or "nav/coms" and have navigational and communications applications. One system contained in transceivers is the VOR. The VOR is a primary navigational system employed by pilots of all aircraft.

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Department of Transportation
Office of Inspector General

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on
Aviation Safety

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REPORT ON

THE FEDERAL AVIATION ADMINISTRATION

RESPONSIVENESS TO SUSPECTED AIRCRAFT MAINTENANCE AND DESIGN PROBLEMS

Report Number: E5-FA-4-009

Date: April 15, 1994

Prepared by the
Office of Inspections and Evaluations
Office of Inspector General
U.S. Department of Transportation

U.S. Department of
Transportation
Office of Inspector General

RESPONSIVENESS TO SUSPECTED AIRCRAFT MAINTENANCE AND DESIGN PROBLEMS

Federal Aviation Administration

Report Number: E5-FA-4-009 *April 15, 1994*

SYNOPSIS

Objective

To evaluate the FAA's ability to identify and respond to suspected aircraft maintenance and design problems, including how problems are identified, researched, and processed.

Conclusion

FAA does not adequately oversee its engineers' activities and decisions since a formal system is not in place to ensure all important aircraft problems are properly reviewed. FAA lacks the necessary analysis capability to properly evaluate suspected aircraft maintenance and design problems, and does not have an adequate tracking and reporting mechanism to permit retrieval of information from earlier incidenta for use in evaluating new problems. FAA makes limited use of, and has no specific requirements for, trend analysis. Information on aircraft problems in the FAA database is seriously incomplete.

Monetary Impact

This report does not recommend a recovery or better use of funds. Our recommendations are directed at ensuring FAA quick response to suspected aircraft maintenance and design problems.

Recommendations

FAA develop and implement a formal tracking system to ensure adequate accountability and timely resolution of reported aircraft maintenance and design problems. FAA develop and implement standard procedures for documenting research of suspected aircraft problems. FAA correct deficiencies in the Service Difficulty Reporting (SDR) Program and/or invest in alternate sources to facilitate trend analysis of aircraft problems. FAA develop and communicate trend analysis guidelines, addressing the use of SDR or alternate systems in conducting trend analysis of suspected aircraft problems.

Management Position

FAA initially did not concur with all recommendations, but after further discussion did concur.

Office of Inspector General Comments

Actions planned by FAA are reasonable.

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Memorandum

Subject ACTION: Report on the FAA Responsiveness to Suspected Aircraft Maintenance and Design Problems

Date April 15, 1994

From A. Mary Schiavo Mary Schiavo
Inspector General

Reply to Attn of J-1

To Federal Aviation Administrator

The Office of Inspector General (OIG) conducted an inspection of the Federal Aviation Administration's process for identifying and responding to suspected aircraft maintenance and design problems. Attached is the OIG report.

We received your comments to the draft report, and have incorporated those comments within the final report as appendix G. Specifically, there is agreement that FAA has planned and undertaken corrective actions which meet the intent of the report recommendations.

The cooperation and assistance extended by your staff to our inspection team were greatly appreciated. If I can answer any questions or be of any further assistance, please feel free to call me on (202) 366-1959, or my Deputy, Mario A. Lauro, Jr., on (202) 366-6767.

Attachment

#

EXECUTIVE SUMMARY

The Office of Inspector General (OIG), Department of Transportation, conducted an inspection of the Federal Aviation Administration's (FAA) ability to identify and respond to suspected aircraft maintenance and design problems. This inspection was initiated in response to growing concerns about the FAA's ability to correct suspected aircraft problems--particularly after the October 1992 El Al Airlines crash in the Netherlands. During the inspection, we contacted 89 representatives from FAA, the National Transportation Safety Board (NTSB), aircraft manufacturers, and aircraft operators.

Our review concludes that FAA's ability to identify, evaluate, and correct suspected aircraft maintenance and design problems is hampered by inadequate oversight of the FAA engineers' activities and decisions, and insufficient analysis capability. This conclusion applies primarily to FAA's Transport Airplane Directorate (TAD), which is responsible for addressing a majority of the reported aircraft maintenance and design problems. Specifically, we determined:

- ✓ TAD's ability to identify and respond to suspected aircraft maintenance and design problems is hampered by inadequate oversight because:
    - No formal system exists to ensure aircraft problems do not fall into a "black hole"; and
    - No adequate documentation, tracking, and report archival and research mechanism exists to enable the FAA to recall incidents, other than by engineers' memories.
- ✓ TAD's ability to evaluate suspected aircraft maintenance and design problems is hampered by insufficient analysis capability because:
    - FAA Service Difficulty Reports are incomplete, with omissions of information as high as 98 percent; and
    - TAD makes limited use of, and has no specific requirements for, trend analysis.

Given these findings, we recommend the following: (1) TAD develop and implement a formal tracking system to ensure adequate accountability and timely resolution of reported aircraft maintenance and design problems; (2) TAD develop and implement standard procedures for documenting research of suspected aircraft problems; (3) FAA correct deficiencies in the Service Difficulty Reporting (SDR) Program and/or invest in alternate sources to facilitate trend analysis of aircraft problems; and (4) FAA's Flight Standards Service develop trend analysis guidelines and communicate these guidelines to TAD. The guidelines should address the use of SDR (and/or alternate systems) in conducting trend analysis of suspected aircraft problems.

In response to our draft report, FAA did not agree to develop and implement a formal tracking system or standard procedures for documenting research. FAA's position was current systems or processes exist which meet the intent of the formal tracking systems. Furthermore, FAA saw no value in researching each and every record in the SDR database since 99 percent of them are not significant. During our subsequent discussion with FAA on its comments, the operating administration concurred with our recommendations. We are requesting FAA provide milestone dates for the tracking system, the standard procedures for documenting research of suspected aircraft problems, the correction of SDR Program deficiencies, and the trend-analysis guidelines. We modified the report as necessary based on information provided by FAA in its reply to the draft report. The entire text of FAA's reply is included as appendix G.

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INTRODUCTION

BACKGROUND

Airworthiness Concerns

A number of recent aircraft crashes raised the public's concerns about aviation safety. Some of these include:

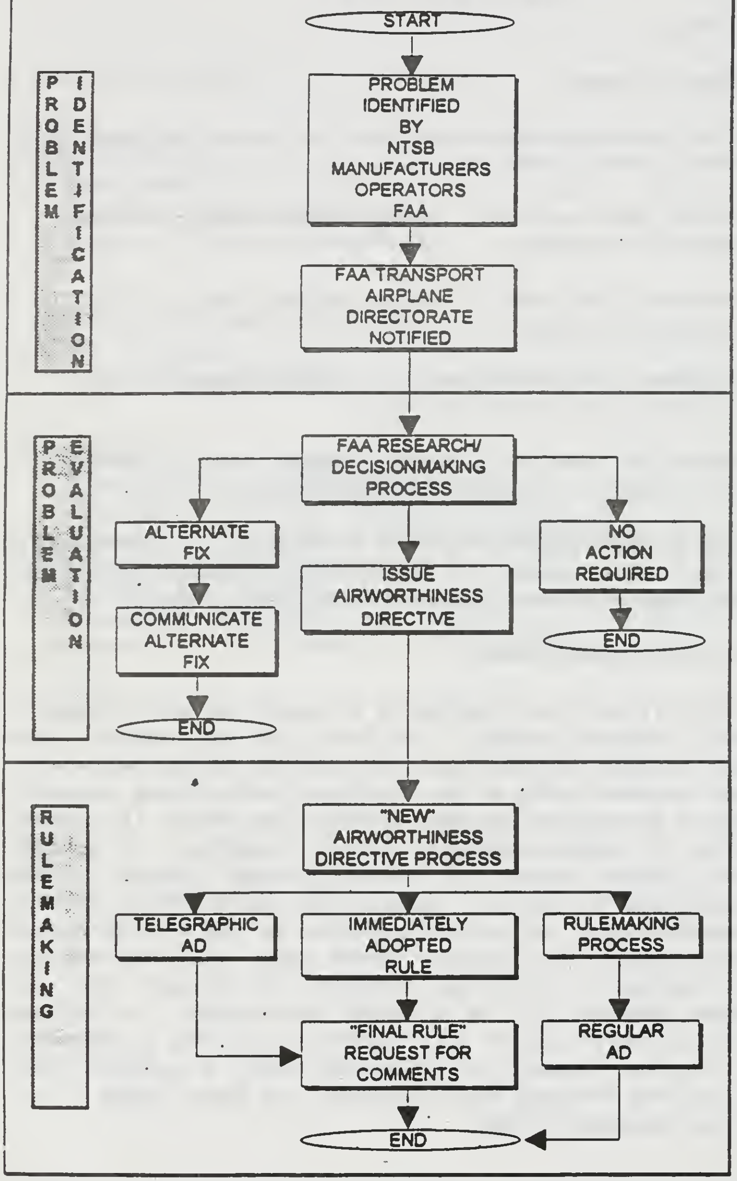
- March 1991 crash of a United Airlines Boeing 737-200 aircraft in Colorado;
- December 1991 crash of a China Airlines Boeing 747-200 aircraft in Taiwan;
- October 1992 crash of an El Al Airlines Boeing 747-200 aircraft in the Netherlands; and
- April 1993 crash of a small passenger plane in Iowa, which killed the Governor of South Dakota.

As a result of these incidents and the resulting public concern, OIG initiated this study to examine the FAA's ability to identify and rapidly respond to suspected aircraft maintenance and design problems.

Continued Airworthiness Process

One of the FAA's key responsibilities is to ensure the airworthiness of the nation's commercial aircraft. To fulfill this responsibility, FAA established a process for identifying and correcting aircraft maintenance and design problems known as the "continued airworthiness process." The continued airworthiness process involves three stages: (1) problem identification, (2) problem evaluation, and (3) rulemaking. In the first stage, FAA receives reports of aircraft problems through various sources, including the National Transportation Safety Board (NTSB), aircraft manufacturers, and aircraft operators, as well as from various organizations within FAA. In the second stage, FAA evaluates the identified problem to determine whether an alternate fix, an airworthiness directive (AD), or no action, is necessary. In the final stage, FAA issues an AD--an FAA regulation requiring a mandatory aircraft inspection, repair, or modification within a specified time. Figure 1 (on the following page) illustrates the three stages in the continued airworthiness process.

FIGURE 1
Continued Airworthiness Process


PROBLEM IDENTIFICATION
START
PROBLEM IDENTIFIED BY NTSB MANUFACTURERS OPERATORS FAA
FAA TRANSPORT AIRPLANE DIRECTORATE NOTIFIED
PROBLEM EVALUATION
FAA RESEARCH/ DECISIONMAKING PROCESS
ALTERNATE FIX
COMMUNICATE ALTERNATE FIX
END
ISSUE AIRWORTHINESS DIRECTIVE
NO ACTION REQUIRED
END
RULEMAKING
"NEW" AIRWORTHINESS DIRECTIVE PROCESS
TELEGRAPHIC AD
IMMEDIATELY ADOPTED RULE
RULEMAKING PROCESS
"FINAL RULE" REQUEST FOR COMMENTS
REGULAR AD
END

INSPECTION GOALS AND OBJECTIVES

The goal of this inspection was to evaluate the FAA's ability to identify and respond to suspected aircraft maintenance and design problems. In support of this goal, three objectives were identified:

(1) Determine how FAA, NTSB, aircraft operators, and aircraft manufacturers identify and report aircraft maintenance and design problems;

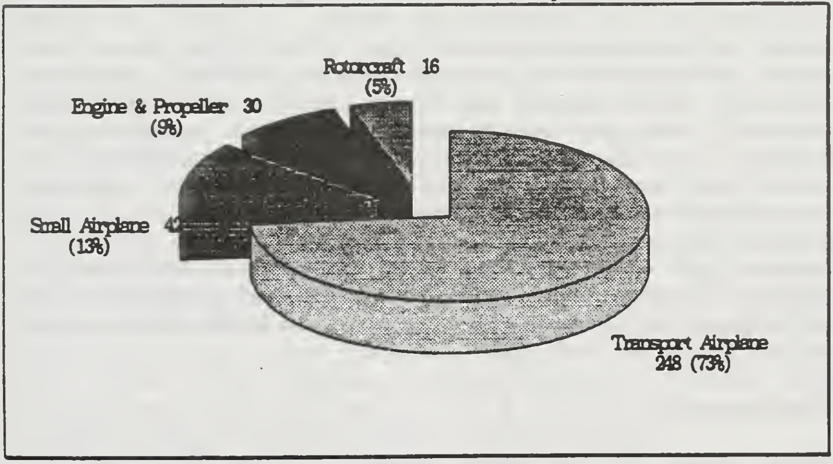
(2) Evaluate the FAA's process for researching suspected aircraft maintenance and design problems; and

(3) Evaluate the FAA's process for issuing an airworthiness directive (e.g., rulemaking procedures).

INSPECTION SCOPE AND METHODOLOGY

To achieve the inspection goals and objectives, we focused our review on TAD, one of four FAA directorates responsible for certification, continued airworthiness, and rulemaking. In 1992, TAD issued approximately three-fourths of all ADs. Chart 1 illustrates the number of ADs issued by TAD, and the other FAA directorates (i.e., Engine and Propeller, Rotorcraft, and Small Airplane) in 1992.

Chart 1: 1992 Airworthiness Directives by FAA Directorate



Although this inspection focused primarily on TAD (e.g., large transport aircraft), we did review the April 1993 airplane accident involving the death of the South Dakota Governor. Since the aircraft involved was a small passenger plane, the FAA's Small Airplane Directorate conducted the investigation. Specifically, we examined the Small Airplane Directorate's efforts to identify and correct the defect leading to the airplane's crash. Appendix A of this report discusses our specific findings and conclusions.

Interviews and Surveys

As part of our inspection, we contacted 89 officials from FAA, NTSB, aircraft manufacturers, and aircraft operators. Specifically, we interviewed the TAD personnel responsible for evaluating and responding to aircraft maintenance and design problems. We also used two surveys to gather opinions and information on the continued airworthiness process. TAD engineers completed the first survey, and a focus group of eight manufacturers completed the second survey. All field work was conducted during March and April 1993. (See appendix B for a complete listing of activities visited or contacted during this inspection.)

Document Reviews

We reviewed various documents, including 1992 AD docket files (see appendix C for a complete listing), the FAA recommendations, the NTSB recommendations, and manufacturer reports. A docket file is the official file documenting the AD process. The docket file includes: service bulletins; notices of proposed rulemaking (NPRMs); petitions for rulemaking and exemptions; and written material received from public comments. The FAA recommendations are actions recommended by aviation safety inspectors, who regularly conduct safety inspections of aircraft and repair facilities. The NTSB recommendations are safety recommendations based on its "probable cause" investigations of major incidents, or on its own safety studies. Manufacturer reports cover 13 different types of problems reported to TAD within 24 hours after the incident. All of the above documents were reviewed to understand how the continued airworthiness process works when issuing or not issuing an AD.

Prior Coverage

Recent studies by the General Accounting Office (GAO) and FAA address aspects of the continued airworthiness process. These studies, listed in appendix D, served as reference points for this inspection.

ISSUES AND RECOMMENDATIONS

Our inspection concludes that FAA's ability to identify, evaluate, and correct suspected aircraft maintenance and design problems is hampered by inadequate oversight and insufficient analysis capability. The following two issues present our specific findings and recommendations for improvement.

ISSUE A: THE TRANSPORT AIRPLANE DIRECTORATE'S ABILITY TO IDENTIFY AND RESPOND TO SUSPECTED AIRCRAFT MAINTENANCE AND DESIGN PROBLEMS IS HAMPERED BY INADEQUATE OVERSIGHT.

TAD does not adequately track and maintain information on most identified aircraft maintenance and design problems. Such tracking and documentation is critical to ensure proper management oversight and timely responses to reported aircraft problems. These oversight shortfalls are evident in each stage of the continued airworthiness process--as demonstrated by the following discussion.

PROBLEM IDENTIFICATION STAGE

Problem Identification

TAD receives notification of suspected aircraft problems from NTSB, aircraft manufacturers, aircraft operators, and from various sources within FAA. Reporting methods include FAA and NTSB recommendations, manufacturer Federal Aviation Regulation (FAR) 21.3 reports, service bulletins, and aircraft operator service difficulty reporting. (See Table 1, on the following page, for a description of each reporting method.) In 1992, TAD received 190 manufacturer reports, 62 FAA recommendations, and 21 NTSB recommendations, as well as approximately 26,000 reports through FAA's SDR Program. (The SDR program is discussed in Issue B of this report.) In addition to these reports, TAD receives large numbers of service bulletins, daily alert bulletins, and direct contacts.[1] Since the directorate does not track these latter reporting methods--because it believes these reporting methods do not usually result in an AD--we were unable to determine the number of such reports received by TAD.

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[1] Direct contact occurs when TAD engineers receive notification of aircraft problems through telephone calls, letters, or facsimiles from NTSB, the manufacturers, the operators, or FAA.

Table 1: Methods of Reporting Aircraft Problems

Organization	Reporting Method	Description
NTSB	Recommendation Direct Contact	NTSB makes formal safety recommendations to TAD, based on its "probable cause" investigations following aircraft accidents. NTSB also develops safety recommendations based on its investigations of major incidents or on its own safety studies. NTSB informally communicates many recommendations before determining "probable cause" to allow early FAA problem evaluation.
Manufacturer	FAR 21.3 Reporting Service Bulletin Direct Contact	FAR 21.3 mandates aircraft manufacturers report 13 different types of problems within 24 hours after the incident. Aircraft manufacturers generally mail or fax their reports to TAD. The manufacturer does not report incidents if the air carrier reports the same incident through FAA's SDR Program discussed below. In addition, the manufacturer can recommend corrective action to operators by a service bulletin urging inspections, adjustments, or part replacement. FAA approves service bulletins and may followup with an AD mandating modifications according to service bulletin specifications.
Operator	Service Difficulty Reporting Direct Contact	Aircraft operators report aircraft problems to TAD using FAA's SDR Program. FAR 121.703 mandates operators report 17 specific items within 72 hours of the incident to the FAA Flight Standards District Office (FSDO). After an initial review, the FSDO mails operator reports to FAA's Aeronautical Center, which enters them into a national computerized data base. The Aeronautical Center subsequently compiles a weekly report and mails it to TAD.
FAA	Daily Alert Bulletin Recommendation Direct Contact	The FAA Office of Integrated Safety Analysis receives reports from FAA personnel (such as air traffic controllers and aviation safety inspectors), who witness incidents such as near midair collisions and pilot deviations. The Office of Integrated Safety Analysis, in turn, prepares daily alert bulletins, reporting the incident to TAD. In addition, FSDO aviation safety inspectors, who regularly conduct safety inspections of aircraft and repair facilities, can formally recommend action through FAA's Accident Investigation Division.

TAD Tracks Some Reported Aircraft Problems

TAD has developed three tracking systems to fulfill congressional and FAA requirements and/or to provide greater oversight and accountability of reported aircraft problems. These systems contain such information as specific receipt and completion dates, names of assigned TAD engineers, and descriptions of reported problems. The following describes each system.

FAA and NTSB Recommendations

FAA is required by DOT Order 2000.1C and FAA Order 8020.11A to respond to NTSB and FAA safety recommendations, respectively, within 90 days. The FAA's Office of Accident Investigation, Recommendation and Quality Assurance Division (AAI-200), upon receiving the NTSB and the FAA recommendations, reviews each recommendation, enters it into the office's evaluation program, and forwards the recommendation to the responsible FAA office. When TAD is the FAA action office, the recommendation is handled by the "tracking" engineer. After the tracking engineer determines the technical expertise needed to address the recommendation, he/she gives the recommendation to the TAD branch manager/supervisor responsible for the technical area, who assigns it to an engineer. The tracking engineer logs the recommendations onto a personal computer, including the name of the "assigned" engineer. The assigned engineer is then responsible for reviewing and acting on the problem. If there is no action within 6 weeks, the tracking engineer contacts the assigned engineer or branch manager/supervisor to get an explanation for the delay. Regular followup on open problems continues until closure. Once the tracking engineer is notified of the intended action, he/she forwards a response to AAI-200.

We did not examine TAD's responsiveness to FAA Recommendations because AAI-200 reviews all responses from the FAA action office. If the action office is not responsive to the recommendation, AAI-200 takes action to resolve the recommendation. Furthermore, to minimize overlap with an ongoing OIG audit, we did not examine TAD's responsiveness to the NTSB recommendations. The OIG audit, entitled "Efforts to Implement Corrective Action on National Transportation Safety Board Recommendations," examined the adequacy and timeliness of FAA's implementation of NTSB safety recommendations. The audit concluded FAA's initial responses were issued to NTSB in a timely manner, and FAA's implementation of action plans was generally consistent with established NTSB goals for the severity of the condition.

Manufacturer FAR 21.3 Reports

In 1991, TAD introduced a tracking system for manufacturer FAR 21.3 reports. The system was designed to oversee the only source identifying aircraft problems on U.S.-made, foreign-operated aircraft. Like the tracking system for the NTSB and the FAA recommendations, this system is maintained by one TAD engineer, with information stored on a personal computer. To measure the system's effectiveness, we sampled one-third of the 1992 manufacturer reports received by TAD's Aircraft Certification Office (ACO), Seattle, Washington. Because date information was incomplete (i.e., no date of TAD's response), only about one-half of this sample could be analyzed. Nevertheless, of those reports analyzed, 62 percent were resolved within 50 days after entry into the tracking system.

Service Difficulty Management System

A third system, the Service Difficulty Management System (SDMS), was developed by the Propulsion Branch, one of six branches within TAD's Seattle ACO. In operation for approximately 3 years, SDMS provides needed management oversight of the various aircraft problems being reported to and addressed by the Propulsion Branch engineers in the Seattle ACO. Specifically, SDMS tracks the status and closure of "critical[2]" problems identified by an engineer or supervisor, including some problems not resulting in ADs. However, since SDMS only monitors what is considered "critical," the vast majority of problems reported through such sources as service bulletins, daily alert bulletins, and direct contacts are not tracked. Therefore, if the problem occurred again, FAA would have no record of prior occurrences.

Nevertheless, several interviewees cited the value of SDMS. For instance, a Seattle ACO engineer noted SDMS is effective in ensuring the office's accountability in addressing reported aircraft problems. Similarly, the Seattle ACO's Propulsion Branch Manager sees the system as being very valuable for managing reported problems. He noted: ". . .considering the sheer volume of problems addressed, something could get lost . . . SDMS serves as a tickler for closure." Despite these endorsements, TAD has not expanded the use of SDMS within the directorate. To date, only engineers at TAD's Seattle ACO Propulsion

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[2] FAR Part 39 defines a "critical" problem as an unsafe condition existing in a product and likely to exist or develop in other products of the same type. An engineer determines whether a problem is "critical."

Branch, who generated approximately 5 percent of TAD's 1992 ADs, depend on the SDMS for tracking "critical" problems.

TAD Does Not Track the Majority of Reported Aircraft Problems

Although tracking systems exist for the FAA and the NTSB recommendations, manufacturer reports, and for critical problems being worked by Seattle ACO engineers in the Propulsion Branch, no comparable, directorate-wide systems have been developed to monitor problems reported through service bulletins, daily alert bulletins, and direct contacts (e.g., telephone calls, letters, or facsimiles). The absence of a directorate-wide system is significant, because 78 percent of the sampled 1992 ADs originated from aircraft problems TAD does not track. (Sources of sampled ADs are listed in appendix C.)

TAD becomes aware of most unsafe conditions through an engineer's direct contact with a source. For example, a manufacturer may telephone the engineer about a newly discovered aircraft problem, such as an aircraft part rated for 20,000 hours failing after 10,000 hours. If a problem is received in the mail or via fax, the directorate manager or the ACO manager would assign the problem to an engineer. Assignments are made according to the type of problem (e.g., engineers have specialties within the directorate, such as airframe, systems and equipment, and propulsion). According to TAD managers, engineers should informally brief them of any aircraft problem developments, with the engineer responsible for determining the appropriate action.

Conflicting opinions exist within TAD regarding the need for a tracking system. The Seattle ACO manager believes an individual engineer is accountable to his manager, if he mishandles evidence of, or does not inform management about, aircraft problems. In addition, a Seattle ACO engineer stated the manufacturer is sufficiently on top of issues so TAD engineers need not be. Not all engineers share these views, however. According to two Seattle ACO engineers, no formal internal control system exists to ensure aircraft problems do not fall into a "black hole." Too often engineers rely on their memory to recall prior aircraft problems or incidents.

PROBLEM EVALUATION STAGE

Research Process

TAD conducts research and analysis to determine both the causes of aircraft problems and appropriate responses. To determine the causes of aircraft problems, TAD engineers collect and evaluate data pertaining to the suspected aircraft problem. This data collection may involve such steps as talking to the manufacturer, reviewing SDR data, or examining the defective part.

Once a problem is identified, the TAD engineer ordinarily contacts the reporting source to get complete information on what happened. If the corrective action is not obvious, the engineer may decide to analyze data on past failures using the SDR. After performing any discretionary analysis, the engineer judges whether the problem presents an unsafe condition (i.e., could cause catastrophic failure), warranting an AD. According to a TAD engineer, the judgment of whether the condition is safe or unsafe frequently comes from a "gut" feeling.

FAA heavily relies on large aircraft and engine manufacturers to correct problems. The manufacturers maintain comprehensive service difficulty databases to track on-going service experience. Using this data, the manufacturer usually prescribes the procedures needed to monitor and correct the unsafe condition in a manufacturer service bulletin. FAA may then mandate the product fix in an AD, establishing required compliance time.

Upon completing necessary research, the engineer will recommend one of several courses of action including: no action, an alternate fix (e.g., service bulletins, enforcement actions, or maintenance improvements), or an AD. No action is required when an incident is not considered a critical problem. An alternate fix may be used if a critical problem affects a handful of aircraft which are easily identified, and FAA can confirm corrections are made. However, if FAA cannot confirm corrections were made, then an AD will be issued. ADs are the only means for FAA to force manufacturers and air carriers to make fixes or to perform inspections. ADs are issued for critical problems that have a high risk[3] of reoccurrence. When an AD is necessary, TAD issues one of three types: (1) a Telegraphic AD, (2) an Immediately Adopted

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[3] Determined by an engineer's judgment of whether the unsafe condition is likely to exist or develop in other products of the same type.

Rule (IAR), or (3) a Regular AD. Both the Telegraphic AD and IAR are expedited forms of ADs, where the public comment period is modified to avoid delaying AD issuance. In these two instances, the engineer has determined the suspected aircraft problem poses an immediate hazard to flight, and therefore requires prompt corrective action. (The AD rulemaking process is further described in the "Rulemaking Stage" section.)

Research Process is Time-consuming

The research process represents a major portion of the time needed to develop an AD. Our analysis of sampled Regular ADs[4], for instance, revealed that 65 percent of the AD development time is spent on research.[5] (Research time is calculated in days from problem identification until the problem enters the rulemaking process.) Furthermore, as illustrated by Chart 2, two-thirds of Regular ADs involve more than 7 months of research. This figure is significant, since an aircraft problem remains a potential safety hazard until corrective action is implemented.

For example, in December 1991, a China Airlines Boeing 747-200 crashed when its two right engines fell off. A similar crash occurred in October 1992, when an El Al Israel Airlines Boeing 747-200 crashed after its two right engines fell off during takeoff from Amsterdam. Many within the aviation community, as well as the media, believe the El Al Israel Airlines crash could have been prevented had FAA issued an AD prior to this accident. Reasons behind TAD's delay in issuing an AD are discussed in the following section.

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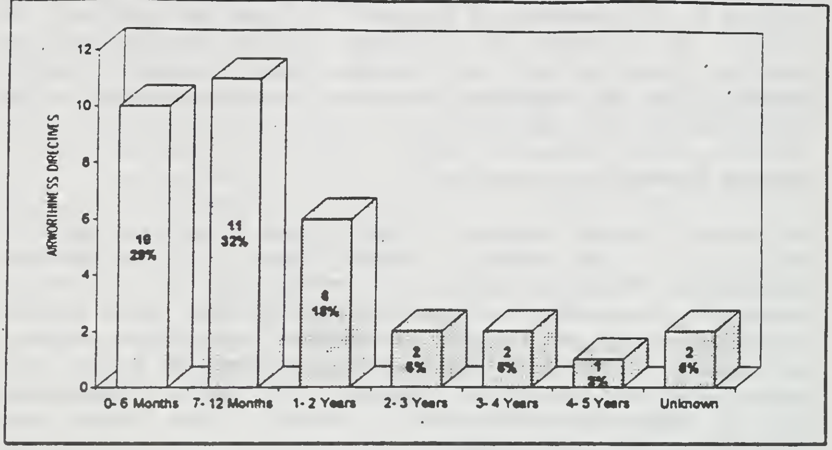
[4] Regular ADs accounted for 80 percent of all ADs issued by TAD in 1992.

[5] Due to the lack of documentation, the inspection team was not able to reconstruct comparable research information for Telegraphic ADs and IARs.

Chart 2: Research Time Required for Regular ADs



Multiple Factors Complicate Research

Various factors, both outside and within TAD's control, delay the research process. To complete necessary research, TAD engineers may need to await: (1) recovery of missing aircraft parts from accident sites; (2) results from manufacturer and NTSB testing; (3) results from NTSB investigations; and (4) receipt of aircraft data from manufacturers and operators. The following example involving Boeing 747 fuse pins offers a good illustration of factors outside TAD's control.

As mentioned above, two very similar accidents occurred involving Boeing 747 aircraft within a 10-month period. Both aircraft had engines fall off shortly after takeoff. After the first accident, the TAD speculated accident cause was catastrophic engine failure. TAD was unable to prove this theory, since the engines and supporting structures fell into the ocean. Without sufficient evidence, TAD was unwilling to issue an AD. When one engine was finally located 7 months after the crash, it showed no signs of massive failure. TAD, therefore, believed it was correct not to issue an AD based on the initial speculation because it would have been incorrect and costly to the operators and may have deferred further investigation. After engine recovery, TAD shifted its investigation to the engine's support structure, particularly the fuse pins. Again, missing parts were an obstacle. Finally, TAD decided these two accidents, together with information collected on earlier problems with fuse pins, warranted an AD 10 months after the first accident.

Factors within TAD's control include the prioritization of engineers' research efforts, the internal AD coordination and approval process (discussed under the Rulemaking Stage), and internal analytical capabilities (addressed in Issue B). TAD's first priority is responding to aircraft problems (i.e., continued airworthiness). Research directly supports continued airworthiness by determining necessary corrective action. When management is aware of active airworthiness problems within TAD, they can determine which problems have higher priority and should be resolved first. When management is not aware of active airworthiness problems within TAD, engineers determine which problems have higher priority and should be resolved first. Since management is not involved in the engineering analysis, management may shift priorities based on political, public, or carrier preferences. In one case involving research prioritization at the Small Airplane Directorate, work on a propeller failure FAA believed was an isolated event was delayed several months while the engineer focused on two airworthiness concerns he considered more urgent. Only when a second, identical propeller failure occurred did the original aircraft problem become top priority again.

Research is Not Well Documented or Managed

As this report has demonstrated, TAD engineers have wide discretion in identifying aircraft problems requiring detailed research, in conducting and documenting this research, and in deciding whether an AD is justified. When the TAD engineer determines an AD is justified, TAD opens a docket file to manage the process. Yet, even in these instances, we found the research and decisionmaking information maintained by TAD personnel was frequently piecemeal and inconsistent. For those aircraft problems not resulting in ADs, the situation was even worse, with no documentation requirements. The lack of adequate documentation can seriously hamper future efforts to rapidly identify and evaluate aircraft problems that may have occurred previously.

Compounding poor research documentation is limited management oversight of engineers' work. TAD management relies on informal communication with engineers to monitor individual projects. TAD managers do not believe it is necessary to formally monitor the workload of engineers. They expect engineers to exercise a high degree of independent, professional judgment in evaluating and addressing potential ADs. The Seattle ACO Manager, for instance, considers the mishandling of research documentation as an individual performance problem. According to this manager, the engineer's job is to keep supervisors informed about aircraft problems. Nevertheless, this informal system creates questions about TAD's consistency and thoroughness in addressing aircraft problems.

RULEMAKING STAGE

Rulemaking Process

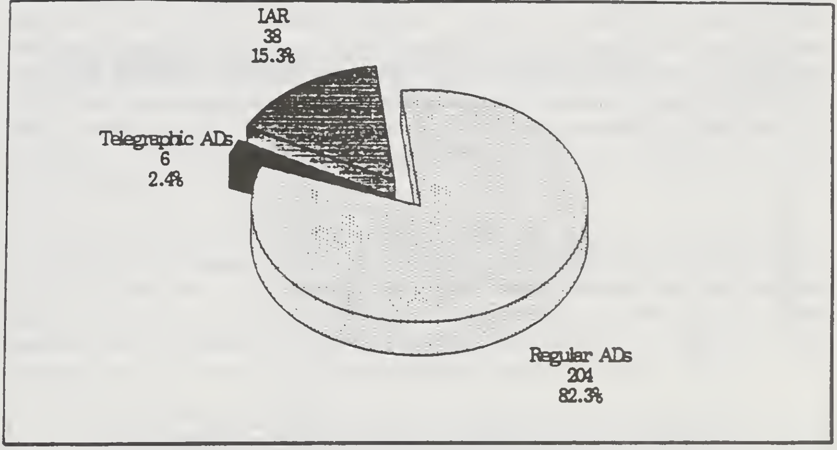
Rulemaking, the final stage of the continued airworthiness process, involves the drafting and issuance of ADs. This process is prescribed in FAR 11, Subpart E. As previously discussed, directorate's issue three types of ADs: Telegraphic, IAR, and Regular. Although all ADs are published in the "Federal Register" to allow a public comment period, urgency of the aircraft problem dictates the type of AD and the corresponding rulemaking procedure. For instance, Telegraphic ADs, the most urgent, are issued by telegram or priority letter directed to the aircraft owners and operators before official public notice and comment. IARs, moderately urgent, are issued concurrent with public notification. Finally, Regular ADs, the least urgent, are issued after the public comment period.

FAA may withdraw, amend, or finalize an AD based on analysis of public comment. If substantial changes occur, a new AD may be required and the process repeated. The AD is then published as a final rule, along with public comments. In 1992, TAD issued 248 ADs. Of these, Regular ADs accounted for over 80 percent, followed by IARs and Telegraphic ADs. A breakout of the three types of ADs issued in 1992 is provided in Chart 3 (following page).

FAA Improved AD Development Process

In 1990, FAA established a Process Improvement Action Team (PIAT) to address complaints about the AD process. Some of the complaints included: the AD process took too long; AD quality was uneven; and rulemaking was hampered by multiple reviews, ill-defined roles and responsibilities, poor working relationships, and conflicting policy.

Chart 3: Types of ADs Issued by TAD in 1992



The 1992 Interim PIAT Report recommended improvements that were subsequently adopted. Timeliness was improved by reducing process steps from 15 to 9. Quality was addressed by developing clear standards and establishing drafting teams, consisting of both a technical writer/editor (a new position) and a project engineer. These teams helped ensure the technical accuracy of ADs and compliance with AD standards. The PIAT also assigned a "time value" of 29 days for Regular ADs, from drafting the AD through publication in the "Federal Register." According to the PIAT, tracking was an important performance measurement tool, providing management with objective data to improve timeliness, such as identifying:

- o What steps are slowest or have the greatest delays?
- o Which engineers have the greatest difficulty meeting the standards? Are there common reasons?
- o Are the goals realistic (too short/too long)?

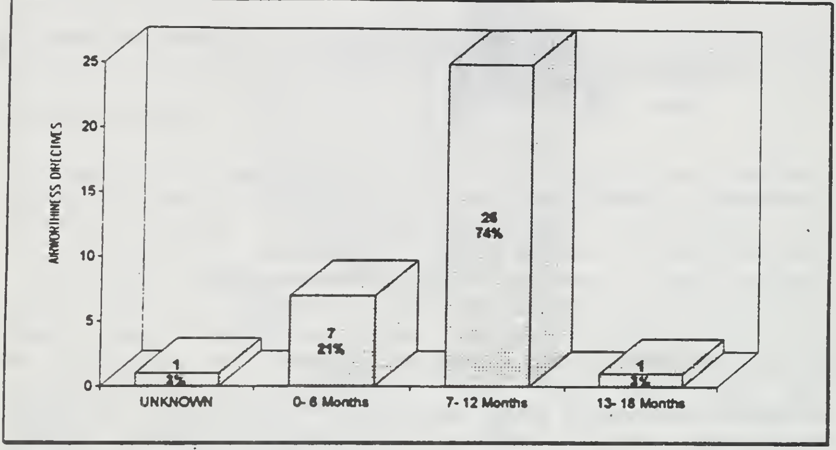
Our analysis of ADs initiated in 1992 found FAA almost met its own timeliness goals to prepare the AD for publication, averaging 30 days (compared with the FAA's 29-day standard).

Rulemaking Process is Time-consuming

As with the research process, rulemaking for Regular ADs takes considerable time, averaging 7 months. Our analysis of the sampled

1992 Regular ADs found rulemaking averaged 214 days from the time the problem entered the rulemaking stage to the final rule, as illustrated in Chart 4.

Chart 4: Time Required for Rulemaking Process - Regular ADs



Resource management problems and public comment delays were reasons most often cited by TAD personnel for the lengthy rulemaking process. TAD's Legal Counsel suggested the 7-month timeframe might be a resource management problem rather than a process issue, because management does not prioritize the engineer's work. TAD's managers and engineers also identified the public comment period as an obstacle, but acknowledged it benefits the final AD by identifying mistakes before a rule is published. According to TAD engineers, IARs demonstrate the benefit of advance public comment. Because IARs do not require public comment prior to issuance, they frequently require additional ADs. For instance, if TAD receives important new information during public comment, it may elect to supersede the original IAR with a second AD.

Additional Oversight Needed of Technical Decisionmaking

Although FAA improved the rulemaking process for ADs, problems still remain with TAD's oversight of its engineers. The new AD process identifies nine steps encompassing technical decisionmaking; preparing the draft and final AD; technical, managerial, and legal approvals; and AD issuance and dissemination. Even though the new AD process identifies technical decisionmaking as a process step, no formal monitoring of TAD engineers occurs. For instance, for Regular ADs averaging 7 months in rulemaking, TAD's Legal Counsel attributes 2 months to the public comment period. Given the 29-day standard for the nine-step AD process, approximately 2 additional months may be required for two trips through the process (e.g., one to produce the draft and the second to modify the draft based on public comments). This leaves approximately 3 months of the rulemaking process in question. TAD managers were unable to explain or document how this time was used.

Because public comment requirements delay AD completion, TAD needs to ensure processing within its control is completed efficiently and timely. The new AD process improved many aspects of rulemaking management, but it does not help to manage decisionmaking. This process step should be measured and evaluated to ensure TAD management can expedite the rulemaking stage for Regular ADs.

GREATER OVERSIGHT NEEDED

Based on this inspection, greater oversight by TAD is needed for three primary reasons: (1) to help identify potential aircraft maintenance and design problems; (2) to ensure reported problems are appropriately addressed (e.g., issue of accountability), and (3) to ensure timely resolution of suspected aircraft problems. The following paragraphs address each reason.

To Help Identify Potential Problems

In addition to receiving reports of potential aircraft problems, TAD also internally evaluates and identifies aircraft problems. This internal analytical capability, in part, relies on reported and documented aircraft maintenance and design problems. (Issue B of this report further discusses TAD's internal analytical capabilities.) To the extent this information is not readily available, the engineer's ability to rapidly identify potential problems can be severely hampered. This appears to be the case with TAD, particularly given the directorate's informal approach to tracking and documenting the work performed by its engineers. We observed TAD neither tracks most reported aircraft problems, nor maintains sufficient and consistent research documentation (particularly for those problems not resulting in ADs).

To Ensure Accountability

To achieve continued airworthiness, TAD is accountable for ensuring the proper handling and resolution of all reported aircraft maintenance and design problems. TAD's ability to ensure proper handling and resolution, however, is hampered by the existing process, which is informal and fails to track and document a large portion of reported aircraft problems. Whereas SDMS does help to ensure accountability within the Seattle ACO, this system oversees only a small percentage of TAD's overall workload. Without a centralized tracking system, TAD management lacks assurance that aircraft problems are being efficiently and effectively addressed.

To Ensure Timely Resolution

TAD's ability to ensure the timely resolution of reported aircraft problems is also hampered by the lack of a formal tracking system and consistent/reliable documentation. For instance, each TAD engineer handles several problem areas and/or ADs concurrently; and urgent ADs sometimes preempt problems viewed as less urgent. In addition, other work priorities, such as persistent requests for aircraft certification, sometimes take precedence over ongoing work on reported aircraft problems. According to TAD engineers, the current informal system, attempting to monitor many different potential problems with shifting priorities, can allow engineers to overlook airworthiness concerns and/or delay their resolution. Competing priorities, combined with inconsistent and/or nonexistent documentation, can delay timely identification and research of aircraft problems, as well as the issuance of ADs.

CONCLUSION

FAA's (and, in turn, TAD's) ability to identify and respond to suspected aircraft maintenance and design problems is hampered by inadequate oversight. This oversight includes the need for a formal tracking system and standard procedures for documenting reported aircraft problems. Currently, TAD tracks only a small percentage of those problems leading to ADs. TAD also possesses no formal standards for ensuring consistent and reliable documentation of the directorate's research efforts. Instead, TAD relies on an informal process for overseeing and documenting most research of suspected aircraft problems. Without effective management controls, however, the credibility of TAD's efforts to identify and to ensure accountability and timely resolution of reported aircraft problems remains in question.

RECOMMENDATIONS

Recommendation 1: TAD develop and implement a formal tracking system to ensure adequate accountability and timely resolution of aircraft maintenance and design problems reported by daily alert bulletins, service bulletins, and direct contacts.

Recommendation 2: TAD develop and implement standard procedures for documenting research of suspected aircraft problems. Specifically:

- Publish guidelines for engineers to follow in documenting research.
- Study why research for regular ADs commonly takes up to 12 months and take appropriate action to improve timeliness.

FAA Comments

In a response dated December 27, 1993, FAA did not concur with Recommendations 1 and 2, citing the TAD ACOs already have systems or processes which meet the intent of the recommendations. Specifically, FAA believes the tracking systems for FAR 21.3 reports and NTSB recommendations are adequate and should not be changed. Furthermore, FAA saw no value in researching each and every record in the SDR database since 99 percent of them are not significant. In addition, FAA cites monthly ACO branch meetings where current service difficulties are discussed as both a safeguard against delays and a useful forum for engineering judgment and analysis. Finally, FAA notes this report provides no specific examples of inadequate oversight.

Evaluation of FAA's Comments

The intent of Recommendation 1 and 2 was to recommend FAA expand the current tracking systems and consistently document and research problems. In discussions with FAA on its comments, the operating administration agreed with the logic behind the recommendations but suggested clarification.

Regarding Recommendation 1, we did not recommend FAA eliminate current tracking systems or track all the SDR reports. Based on our sample of 50 docket files, other sources not tracked by TAD (daily alert bulletins, service bulletins, and direct contacts) were as important for identifying potential ADs as tracked sources. In fact, the majority of sources are not tracked by FAA and a "black hole" exists. A tracking system for these items should be developed and can be similar to those already in use.

Regarding Recommendation 2, our recommendations do not require FAA to research all SDR reports. However, engineers did not maintain files on problems that resulted in ADs with any consistency. During our fieldwork we noted some engineers kept very detailed files, while others kept none. In addition, we were unable to find any documentation of monthly service difficulty meetings. In the event engineers receive direct contact on a problem, no documentation is kept if the problem does not result in an AD. If the problem occurred again, FAA would have no record of prior occurrences. FAA admitted lack of oversight when stating it was not necessary to monitor the workload of engineers (see page 13). TAD should propose minimum standards for file contents.

We have considered FAA's comments related to specific aspects of the report and, where warranted, have added appropriate language to the report. During our discussion, FAA concurred with our revised recommendations and agreed to take action responsive to the findings. Accordingly, we request FAA provide milestone dates within 60 days for developing the tracking system and research guidelines, in accordance with DOT Order 8000.1C. Further, upon completion of its study on the research process for regular ADs, we request FAA provide us a copy of the report.

ISSUE B: THE TRANSPORT AIRPLANE DIRECTORATE'S ABILITY TO IDENTIFY AND EVALUATE SUSPECTED AIRCRAFT MAINTENANCE AND DESIGN PROBLEMS IS HAMPERED BY INSUFFICIENT ANALYSIS CAPABILITY.

For TAD engineers, an important part of their job is determining the risk of an aircraft problem reoccurring. If aircraft avionics equipment emits smoke in service or a propeller corrodes prematurely, the engineer must determine if it is an isolated event or a failure that has occurred before and can be expected to occur again. Such reoccurring problems (e.g., trends) may indicate a systemic aircraft problem requiring immediate corrective action. TAD's ability, however, to identify and evaluate the risk of reoccurring aircraft problems is hampered by shortfalls in existing automated systems and/or databases and in engineers' knowledge of how to use database information to do effective trend analysis. The following discusses these shortfalls and their impact on TAD's ability to conduct timely and effective trend analysis of potential aircraft maintenance and design problems.

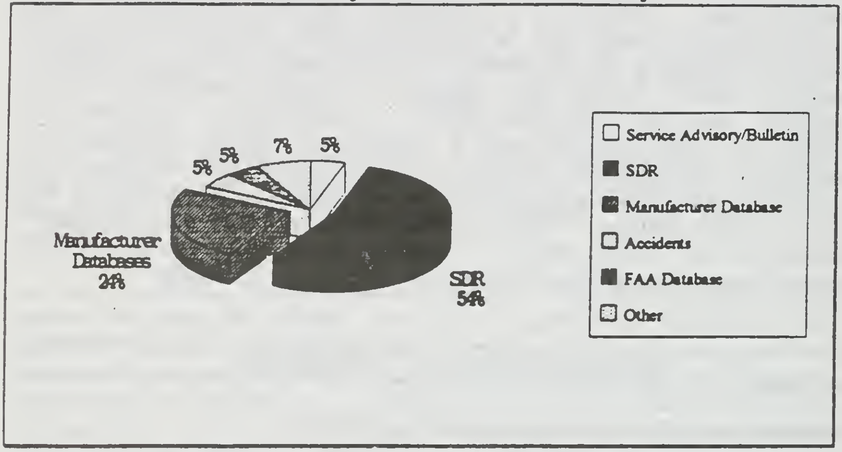
EXISTING AUTOMATED CAPABILITIES

FAA's Service Difficulty Reporting (SDR) Program

FAA's primary resource for conducting trend analysis of aircraft problems is the SDR Program. SDR's role in supporting trend analysis is confirmed by both FAA policy and our survey of TAD engineers. According to FAA Order 8010.2, "Flight Standards Service Difficulty Program," the SDR Program was established, in part, to "detect trends which may indicate future safety problems." Similarly, our survey found that 54 percent of TAD engineers cited SDR as their primary tool for conducting trend analysis. Nevertheless, as illustrated by Chart 5 (following page), another 46 percent cited additional sources for trend analysis--manufacturer databases being the most significant.

FAA's Flight Standards National Field Office at the Mike Monroney Aeronautical Center is responsible for maintaining, analyzing, and reporting SDR data. The Aeronautical Center maintains 5 years of SDR data relating to aircraft malfunctions, including information on aircraft make and model, serial number, operator, part name, part number, part condition, component manufacturer and model, part total time, and up to 115 characters of narrative text describing the aircraft problem. The Aeronautical Center prepares various reports, including a weekly report of all carrier information entered by FAA into the Service Difficulty Program for the weekly reporting period, and a System Analysis Summary Report (identifies adverse trends). The Aeronautical Center also responds to special requests from FAA engineers. The average response time for special requests is 10 days, although urgent requests can be expedited.

Chart 5: Primary Sources for Trend Analysis



The SDR Program has Serious Shortfalls

The SDR Program has a number of serious shortfalls, including unreliable, incomplete, and outdated data; insufficient guidance to program users (e.g., TAD engineers); and various technical limitations. These shortfalls are discussed below.

Unreliable, Incomplete, and Outdated Data

In a March 1991 evaluation report, GAO found FAA did not use SDR data to identify trends because the data was unreliable.[6] GAO also cited SDR users who complained the program lacked complete and timely data, was not a first source for problem identification in transport aircraft, and was not easily accessible. For instance, TAD engineers reported specific information essential for trend analysis was not included in SDR, and there was insufficient information to evaluate the severity of reported problems. Engineers also told GAO that SDR data never alerted them to problems requiring issuance of an AD. GAO recommended FAA examine various alternatives and select one to most effectively achieve the SDR Program's goal. GAO proposed three alternatives:

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[6] GAO Report, RCED-91-24, "Changes Needed in FAA's Service Difficulty Reporting Program," March 1991

(1) FAA continues managing the program and corrects its deficiencies.

(2) Major manufacturers manage the program to take advantage of the global communication network they have with aircraft operators.

(3) An independent organization manages the SDR Program.

FAA is pursuing the first alternative. According to a division manager at the Aeronautical Center, FAA efforts to improve the SDR system were not prompted by GAO but have been ongoing for 4 years. The division manager agreed SDR has not been particularly accessible and user friendly in the past, but the Aeronautical Center is now attempting to make the data readily available to the users.

We found SDR data remains incomplete. For example, the SDR weekly report for January 19-25, 1993, includes numerous instances of incomplete data. In reviewing the report's 572 listed occurrences, we found omissions in the "data field/category" as high as 98 percent--as illustrated by Table 2.

Table 2: Incomplete SDR Data

Data Field/Category	Number of Entries Omitted	Percent of Total Omitted
Part Numbers	263	46%
Part Total Time	381	67%
Component Model	548	96%
Component Manufacturer	558	98%

In addition, "part time since overhaul," listed as a possible SDR category and necessary for trend analysis according to TAD engineers, was not included in this report.

We also found SDR data is not current. Although FAA Order 8010.2 states rapid dissemination of trends, problems, and alert information is an objective of the SDR Program, TAD personnel rely on weekly SDR reports from the Aeronautical Center which take from 4 to 6 weeks from the time a problem is reported to the Aeronautical Center until received by TAD. This delay results from processing paper reports, which require manual data entry into SDR (as opposed to electronic reports being directly entered into SDR). Aeronautical Center personnel confirm a problem with timeliness, although citing some recent progress. For instance, 25 percent of SDR data is electronically transferred into SDR, with the information available the next business day. Nevertheless, approximately 75 percent of SDR data is still transmitted on paper through the mail.

Insufficient Guidance to Engineers on Using SDR Effectively

Current guidance on SDR application is not available, with FAA engineers frequently unaware of system capabilities. For the most part, this is caused by inadequate communication between TAD and the organizations within FAA's Flight Standards Service responsible for SDR operations and service. According to FAA Order 8010.2, "The Service Difficulty Program is a jointly shared endeavor of the pertinent divisions/staffs of the Flight Standards Service. They are responsible for the formulation and dissemination of the general procedures and concepts of the program." However, a supervisor in the Aeronautical Center admitted the process to educate engineers on SDR has been slow. For example, the Aeronautical Center has initiated several improvements, such as allowing aircraft operators to electronically transmit their data, and improving user access to SDR data through an electronic bulletin board system. TAD engineers we contacted, however, were unaware of these initiatives. TAD engineers were also unaware they can specify the SDR report listings and data sort requirements. TAD unfamiliarity with SDR capabilities has minimized engineers' use of SDR for analysis and special requests. For example, although there are 196 TAD engineers, the Aeronautical Center received only six special SDR data requests for the first 30 weeks of 1993.

Technical Limitations

SDR Program problems continue to detract from its use for trend analysis. TAD engineers expressed concern about the lack of sort features, preventing users from manipulating the mainframe data system without expending significant work hours. In addition, TAD engineers criticize SDR as unfriendly to users, with data frequently incomplete and inadequately categorized. Because of these deficiencies, engineers must go to the aircraft carriers or manufacturers to gather needed information.

SDR Shortfalls Illustrated by TAD's Efforts to Analyze Smoke in Aircraft[7]

The impact of SDR shortfalls on TAD analytical capabilities is illustrated by the directorate's efforts to analyze smoke in aircraft. This example demonstrates two primary problems in using SDR for trend analysis: unreliable data and limited guidance.

> Smoke in aircraft incidents occur commonly and require SDR reporting. Because of the large volume of reported incidents, TAD assigned an engineer to look for any trends identifying underlying aircraft design problems. Initially, the engineer, using a personal computer, accessed the SDR database to extract reported incidents involving Boeing aircraft for the years 1986 to 1991. Over 7,000 reported incidents were extracted because of SDR's inability to extract incidents using "key words" such as "smoke". The 7,000 incidents were downloaded onto an electronic spreadsheet and the engineer had to manually sort the listing (reading each incident and making a determination of its nature) to further refine the data. Additional research was required to obtain missing information and to assess the significance of each reported incident. Although he categorized 1,655 of the incidents as "smoke" related, the engineer found no trends to support issuance of an AD.

This example demonstrates the difficulty in using SDR to conduct trend analysis. The TAD engineer spent too much time supplementing incomplete occurrence information. In addition, he did not have the tools to further refine the 7,000 records initially extracted from SDR. In particular, the engineer stated his analysis would have been completed faster and more efficiently if SDR allowed users to search the database for key word combinations such as "smoke" and "avionics", or "smoke" and "landing gear."

Manufacturer Databases

As previously noted, 24 percent of TAD engineers use manufacturer databases as their primary source for conducting trend analysis. In comparison to SDR, however, these databases have several advantages and disadvantages. On one hand, TAD engineers claim manufacturer data are more comprehensive, useful, and timely than SDR data. More comprehensive data results, in part, because manufacturer data includes information on foreign (unlike SDR) as well as domestic aircraft. On the other hand, some manufacturer databases, for example the Boeing database, have no central system allowing easy access to aircraft information. In addition, because FAA does not have direct access to manufacturer data, it can take weeks for the manufacturer to provide information. Furthermore, once the manufacturer data is received, FAA frequently must treat it as proprietary, limiting its use for trend analysis. It can also be argued that too much FAA reliance on manufacturer aircraft problem data seriously compromises FAA's ability to independently oversee the aviation industry.

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[7] TAD's efforts to analyze smoke in the aircraft was part of a continuous on-going review within FAA. This review was not the result of a related OIG Hotline complaint or FAA's reports to Congress.

TREND ANALYSIS WITHIN TAD

TAD's Limited Use of Trend Analysis

TAD makes limited use of, and has no specific requirements for, trend analysis. TAD's trend analysis consists primarily of reviewing printed weekly SDR lists, which report approximately 500 individual occurrences for transport category aircraft. Engineer review of SDR lists may then be supplemented with monthly SDR meetings, where engineers and supervisors address open service difficulties and required actions. Use of trend analysis varies within engineering divisions, depending on the nature of the division's work. For example, TAD engineers report trends are used more in the TAD Systems and Propulsion Divisions, and less in the Structures Division where critical problems are given more weight than trends.

Many TAD engineers are not fully convinced formal trend analysis has any value. Several engineers expressed little faith in trend analysis, offering opinions similar to one engineer who "just knew" when trends were occurring. Other engineers disclosed that trend analysis is not needed, since a single incident may be sufficient to justify an AD. Similarly, a TAD division manager suggests the SDR database may be too small to support trend analysis for all but the broadest categories of aircraft problems, such as smoke in the aircraft or engine failure. He explained that some statistical analysis is performed in the design phase when certifying aircraft, but not in the continued airworthiness process. The division manager attributed this lack of statistical analysis to the almost unlimited number of possible aircraft problems, resulting in numbers of closely related problems too small for meaningful statistical analysis.

TAD Needs To Conduct Trend Analysis

Various officials cited the need for improved trend analysis within FAA. Improved trend analysis is needed to help detect and prevent aircraft problems. For instance, both TAD managers and engineers responsible for investigating potential safety problems find the current process highly judgmental. As stated in Issue A, engineers use "gut" feelings to judge an aircraft problem safe or unsafe, rather than quantifying their instincts with the use of trend analysis. Similarly, representatives of NTSB, Aerospace Industries Association (AIA), and FAA's Office of Aviation Safety noted that FAA does not use SDR to identify potential aircraft problems and should do more trend analysis. The AIA representative suggested FAA should statistically determine standards for issuing ADs, using a formula factoring in both level of risk and industry cost. One TAD engineer stated trend analysis is important, because otherwise individual aircraft problems are reviewed in isolation without adequate consideration of the risk of reoccurrence.

Trend analysis can reduce uncertainty in problem evaluation. A few suspected maintenance and design problems obviously require an AD to compel immediate grounding and inspection. For instance, the February 24, 1989, crash of a United Airlines aircraft was due to a faulty cargo door latch. However, for most suspected maintenance and design problems, the need for an AD is not obvious. Similar events need to be systematically grouped for analysis, not treated as isolated events. By collectively grouping occurrences into categories and systems, and conducting short- and long-term analysis of trends, the TAD can forecast problem areas and become proactive. By helping the TAD engineers order individual events in a systematic way, trend analysis can help identify and resolve aircraft problems.

CONCLUSION

TAD engineers lack tools necessary to do effective trend analysis--good data and convenient means to analyze data. SDR data is incomplete and frustrating to use. Use of manufacturer databases, while an alternative, also possess significant limitations. Even if good data are reconstructed by the engineer, he gets little help within FAA for converting raw data into trend analysis. Thus, improved data, greater accessibility, and improved guidance are needed to enhance TAD's ability to more effectively and efficiently identify potential aircraft maintenance and design problems.

RECOMMENDATIONS

Recommendation 3: FAA correct SDR Program deficiencies and/or invest in an alternate source(s) to facilitate trend analysis of aircraft problems.

Recommendation 4: FAA's Flight Standards Service develop trend analysis guidelines and communicate these guidelines to TAD. The guidelines should address the use of SDR (and/or alternate systems) in conducting trend analysis of suspected aircraft problems.

FAA Comments

FAA concurred with these recommendations. FAA implemented the necessary corrective action as a result of a similar recommendation made by the General Accounting Office (GAO) in report RCED-91-24, Changes Needed In FAA's Service Difficulty Reporting Program, dated March 1991. Since FAA implemented the necessary corrective action and the Department has closed out this recommendation with the GAO, FAA stated further action is not necessary. In 1991, FAA requested the Aviation Rulemaking Advisory Committee (ARAC) to review the SDR program and to propose changes to those areas of the program needing improvement. The ARAC accepted this task and formed a workgroup to address the issue. The workgroup has completed a draft notice NPRM for changes to the SDR reporting rules. FAA is presently providing support to complete the economic and legal reviews that must occur before the NPRM can be published in the "Federal Register." With regard to correcting deficiencies in trend analysis capabilities, FAA stated it should first standardize SDR reporting by operators as discussed above. FAA further contends our report gives trend analysis "too much credit" as a tool to determine whether an AD is needed for transport aircraft.

Evaluation of FAA's Comments

The planned corrective action taken by FAA is fully responsive to the finding and Recommendation 3. We further accept FAA's assertion that correcting trend analysis deficiencies logically follows SDR reporting modification. Therefore, FAA's Flight Standards Service and ARAC development of trend analysis guidelines following SDR changes is responsive to Recommendation 4. However, we request FAA provide milestone dates within 60 days for publication in the "Federal Register" of changes to the SDR reporting rules, in accordance with DOT Order 8000.1C.

APPENDIX A: SMALL AIRPLANE DIRECTORATE

Like the El Al Boeing 747 crash prompting this study, the April 1993 crash of a small airplane in Iowa, which killed the Governor of South Dakota and several others, raised questions about FAA's ability to quickly respond to suspected aircraft problems. In this case, FAA failed to issue an AD to remedy a propeller hub failure, as recommended by NTSB in August 1992. (NTSB's recommendation resulted from its investigation of the September 1991 accident near Utica, New York.) Following the Iowa crash of the same model aircraft, FAA issued a Telegraphic AD within 10 days requiring propeller hub inspections. These facts give the appearance FAA failed to comply with NTSB's recommendation until the high-profile Iowa crash. To examine this incident more closely, the inspection team interviewed officials and reviewed documents at the Chicago ACO, a subdivision of the Small Airplane Directorate. Table 3 provides a brief chronology of events.

Table 3: Chronology of Events for Propeller Hub Failure

Date	Description of Events
9/27/91	Accident near Utica, New York when a propeller blade separated in flight. No injuries reported.
8/13/92	NTSB accident investigation, including laboratory metallurgical examination, results in three safety recommendations to FAA: A-92-81 Develop inspection technique and issue AD requiring fleet inspection. A-92-82 If warranted, issue AD requiring periodic inspections. A-92-83 Determine if manufacturer three- and five-blade propeller hubs require inspection, issuing AD if necessary.
10/26/92	FAA letter to NTSB acknowledges three recommendations. FAA performing reviews of service history for propeller hubs and applicable service manuals.
1/4/93	FAA letter to NTSB reports review of service history found only one known failure. FAA does not believe this requires an AD. In addition, reviews of service difficulty reports concludes no hub cracks found during inspections.
1/6/93	NTSB letter informs FAA its responses to three safety recommendations are "Open--Unacceptable Response."
3/4/93	NTSB letter to FAA repeats FAA responses to three safety recommendations are unacceptable.
4/19/93	A plane crash near Dubuque, Iowa kills South Dakota Governor George Mickelson and eight others. A propeller blade was missing and its mounting cracked.
4/28/93	Manufacturer Alert Service Bulletin issued.
4/28/93	FAA issues Priority Letter (Telegraphic) AD 93-09-04 calling for inspection of propeller hub assembly on one aircraft model and necessary rework within 10 hours time in service (TIS) or 2 calendar months, with re-inspection at intervals of 600 hours TIS or 60 calendar months.
6/10/93	FAA, after finding a crack pursuant to AD 93-09-04 issues AD 93-12-01 requiring three closely related aircraft models to undergo the same inspection requirements.

The inspection team found FAA did not passively disregard NTSB recommendations and then move precipitously following the plane crash near Dubuque, Iowa, which killed the Governor of South Dakota. Instead, FAA and the manufacturer devoted significant attention over a period of several months to the Utica propeller hub failure. Based on its review, FAA concluded that no AD was justified pending collection of additional data. Tragically, this data came with the fatal crash in Iowa.

The following discussion provides FAA's explanation of how FAA and NTSB can disagree on matters of aircraft safety. In addition, the basis for FAA's decision to take no immediate AD action in response to NTSB recommendations, followed by FAA's abrupt reversal following the Iowa crash, is discussed.

Differences in NTSB and FAA Perspective

Although the aviation community has a vital interest in aircraft safety, perspectives differ in important ways. A top official with FAA's Aircraft Certification Service emphasized important differences between FAA and NTSB. In his view, NTSB determines probable cause in accident investigations and makes recommendations to FAA with the intent of avoiding similar future accidents. In contrast, FAA claims it must weigh any NTSB recommendations against both the engineering feasibility and industry cost to make any change, keeping in mind that the best way to promote aviation is to make it safe. An ACO manager put it more succinctly, explaining that NTSB looks at safety only, whereas FAA states it must weigh both safety and economic impact.

FAA Determines AD Not Necessary

With the September 27, 1991, crash near Utica, New York, FAA states it saw no reason to move aggressively with an AD without sufficient justification and/or evidence. According to the FAA, to do so would have burdened the industry and the public with a potentially needless inspection of 7,000 propellers, costing between $15 and $30 million, according to the FAA. Based on its investigation, FAA could not justify an AD because:

- The propeller hub had an excellent service record (approximately 60 million flight hours over 30 years) with no history of failure.

- There was no engineering data to explain the propeller hub failure. The FAA project engineer was present for the manufacturer tear down of the Utica propeller and for the subsequent NTSB Laboratory examination. FAA found the NTSB Laboratory report did not support the NTSB finding on the likely cause of propeller hub failure. FAA also reviewed the original certification testing with the manufacturer, finding that hub arms did not fail. Even the hub arm crack location was not consistent with normal locations of stress predicted by engineering theory. In sum, FAA and the manufacturer did not find the NTSB hypothesis credible.

- Because the Utica aircraft landed safely, according to the FAA there was no reason to expect an aircraft crash even if failure reoccurred.

The Chicago ACO manager stated this "was not even a close call." According to the ACO engineer, it would also be unwise to swamp small repair shops with large numbers of propellers on the speculation something might show up. Such wide-scale, short-deadline inspections could lead to maintenance-induced errors by overworked repair shops that could become a problem in itself, according to the FAA.

Reoccurrence of Aircraft Problem Requires AD

FAA changed its position after the April 19, 1993, crash in Dubuque, Iowa, where cracking occurred in the same propeller hub location on the same aircraft model. Although FAA stated there was still no engineering rationale for the failure, FAA stated it then had no doubt that issuing an AD was the technically correct decision, because of the infinitesimal probability that two nearly identical freak events could occur. However, rather than ordering an inspection of all manufacturer four-blade propellers, as recommended by NTSB, FAA issued an AD to inspect only four-blade propellers on the aircraft model involved in both the Utica and Dubuque incidents. In mandating this limited inspection, FAA stated it was again balancing both safety and economic impact. Examination of some 50 of the approximately 250 propellers requiring inspection under AD 93-09-04 found one additional crack. As a result, the manufacturer revised the alert service bulletin calling for expansion of the propeller hub inspection to three other closely related aircraft models. FAA released an AD on June 10, 1993, requiring these three aircraft models to undergo the same inspection. Only the one cracked hub described above was detected in inspection of 394 of the 474 total propellers completed by December 1993.

FAA stated it is responsible for serving both the safety interests of the flying public and industry interests to avoid expensive fixes without convincing evidence of a safety benefit. According to the ACO engineer, FAA may eventually have to expand AD applicability to 7,000 or even to 35,000 propeller hubs (the entire fleet of aircraft using three-, four-, and five-blade propellers with a similar hub design); but this will only occur when FAA concludes it is justified by additional inspection findings.

Conclusion

The FAA did not ignore NTSB recommendations until the fatal crash in Iowa. In balancing both safety and economic interests, FAA concluded, given available data, there was no justification for moving aggressively toward an expensive aircraft fix. According to the FAA, the balance abruptly tipped toward safety when a second, almost identical failure occurred, resulting in FAA's decision to issue an AD. The OIG determined FAA's actions were consistent with FAA policy for correcting aircraft maintenance and design problems.

APPENDIX B: ACTIVITIES VISITED OR CONTACTED

Associations

Aerospace Industries Association of America, Washington, D.C.
Air Transport Association of America, Washington, D.C.
Aviation Maintenance Foundation International, Redmond, WA.
Aviation Safety Institute, Worthington, OH.

Federal Aviation Administration

Headquarters, Washington, D.C.
Flight Standards Service
Aircraft Certification Service
Associate Administrator for Regulation and Certification

Great Lakes Region, Des Plaines, IL.
Flight Standards Division

Small Airplane Directorate, Kansas City, MO.
Chicago Aircraft Certification Office, Des Plaines, IL.

Mike Monroney Aeronautical Center, Oklahoma City, OK.
Flight Standards Service

Transport Airplane Directorate, Seattle, WA.
Aircraft Certification Office, Seattle, WA.
Aircraft Certification Office, Long Beach, CA.

General Accounting Office

Transportation Issues Division, Washington, D.C.

Manufacturers

Boeing Commercial Airplane Group, Seattle, WA.
Douglas Aircraft Company, Long Beach, CA.
Fairchild Fastener Division, Carson, CA.
GE Aircraft Engines, Cincinnati, OH.
Lockheed Corp., Marietta, GA.
McDonnell Douglas, Long Beach, CA.
Tramco, Everett, WA.
United Technologies - Pratt & Whitney, East Hartford, CT.

National Transportation Safety Board

Denver Regional Investigations Office, Washington, D.C.
Office of Aviation Safety, Washington, D.C.

Operators

American Airlines, Tulsa, OK.
Delta Airlines, Atlanta, GA.
Northwest Airlines, Minneapolis, MN.
Trans American Charter, Ltd., Chicago, IL.
Trans World Airlines (TWA), St. Louis, MO.
United Airlines, San Francisco, CA.
United Parcel Service, Louisville, KY.
USAir, Salem, NC.

APPENDIX C: LISTING OF 1992 DOCKET FILES SAMPLED

TELEGRAPHIC

Sample No.	AD Number			Source	Days Total
1	T92-	10-	51	Foreign Authority	5
2	T92-	13-	51	NTSB	55
3	T92-	14-	51	Op/Man Report	96
4	T92-	16-	51	Unknown	
5	T92-	21-	51	Op/Man Report	175
				Minimum	5
				Maximum	175
				Average	83

IMMEDIATELY ADOPTED RULES

Sample No.	AD Number			Source	Days Total
6	92-	04-	01	Op/Man Report	242
7	92-	04-	07	Daily Alert Bulletin	48
8	92-	05-	01	Facsimile	127
9	92-	10-	08	Accident/Incident	176
10	92-	16-	02	Daily Alert Bulletin	428
11	92-	17-	13	Op/Man Report	68
12	92-	22-	06	Flight Standards District Office	125
13	92-	03-	03	Daily Alert Bulletin	246
14	92-	16-	13	Service Bulletin	86
15	92-	16-	19	Foreign Authority	118
16	92-	24-	03	Daily Alert Bulletin	548
				Minimum	48
				Maximum	548
				Average	201

REGULAR

Sample No.	AD Number			Source	Days Research	Days NPRM	Days Total
17	92-	01-	03	Designated Engineering Representative	172	206	378
18	92-	02-	01	Designated Engineering Representative	246	262	508
19	92-	02-	04	Foreign Authority	152	212	364
20	92-	02-	17	Foreign Authority	543	203	746
21	92-	03-	12	FAR 21.3	116	211	327
22	92-	06-	03	FAR 21.3	491	173	664
23	92-	07-	02	Service Bulletin	799	179	978
24	92-	07-	09	FAR 21.3	334	172	506
25	92-	07-	10	Service Bulletin	383	222	605
26	92-	07-	11	FAR 21.3	270	216	486
27	92-	07-	12	Op/Man Report	460	233	693
28	92-	07-	15	Service Bulletin	124	203	327
29	92-	08-	12	Op/Man Report	888	205	1,093
30	92-	10-	10	NTSB	1,311	192	1,503
31	92-	10-	11	Service Bulletin	482	235	717
32	92-	11-	10	Daily Alert Bulletin		220	
33	92-	13-	12	Op/Man Report	205	226	431
34	92-	14-	02	FAR 21.3	264	235	499
35	92-	15-	03	NTSB	1,315	235	1,550
36	92-	16-	01	Quality Assurance	238	197	435
37	92-	16-	09	Service Bulletin	90	195	285
38	92-	16-	10	Designated Engineering Representative	55	424	479
39	92-	16-	16	FAR 21.3	217	194	411
40	92-	17-	03	Principal Maintenance Inspector	124	223	347
41	92-	17-	08	Op/Man Report	211	208	419
42	92-	17-	10	FAR 21.3	676	195	871
43	92-	19-	05	Accident/Incident	129	209	338
44	92-	19-	06	Principal Maintenance Inspector	162	231	393
45	92-	27-	06	Op/Man Report	14	232	246
46	92-	22-	08	Accident/Incident	1,503	217	1,720
47	92-	22-	08	Accident/Incident			1,607
48	92-	23-	02	Accident/Incident	232	152	384
49	92-	22-	10	Service Bulletin	263	213	476
50	93-	02-	09	Foreign Authority	198	134	332
				Minimum	14	134	148
				Maximum	1,503	424	1,927
				Average	396	214	610

TAD did not maintain information on when[8] and how its engineers first learned of potential problems resulting in ADs. The OIG obtained this data on source and notification date directly from engineers assigned to the problems. Specifically:

- "Days Total" is calculated as the number of calendar days between the notification date and the effective date of the AD.
- "Days Research" is calculated as the number of calendar days between notification date and the date the problem was given to the technical writer to draft an AD.
- "Days NPRM" is calculated as the number of calendar days between technical writer involvement and the effective date of the AD. (Note: "Days NPRM" includes the public comment period and the engineer's time spent responding to public comments.)

For both Telegraphic ADs and Immediately Adopted Rules, "Days Research" was not calculated because the OIG could not determine the date the problem was given to the technical writer to draft the AD. In addition, "Days NPRM" was not calculated because these kinds of ADs do not require public comment before becoming effective.

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[8] TAD began to record this information (independent of our review) in April 1993 to identify how long an engineer was aware of a problem before it was resolved.

APPENDIX D: PREVIOUS COVERAGE

General Accounting Office

- Design/Certification Process and the Adequacy of the Certification Program. At the request of Representative James Oberstar, Chairman of the House Aviation Subcommittee, GAO evaluated the adequacy of FAA certification program. The report, which was issued in October 1993, found management oversight of this program is inadequate.

- Management Improvement Needed in FAA's Airworthiness Directive Program (No. GAO/RCED-90-94, dated February 1990). GAO reviewed FAA's oversight of the AD process. GAO found FAA is not following up on ADs to ensure operator compliance. In addition, if followup is performed, no record is kept and FAA is not using available data to analyze problems and focus inspectors' work.

- Changes Needed in FAA's Service Difficulty Reporting Program (No. GAO/RCED-91-24, dated March 1991). GAO reviewed the effectiveness of FAA's SDR Program. GAO found the SDR Program is not being used to provide the aviation industry with safety alert data, and FAA inspectors virtually never use SDR data.

Federal Aviation Administration

- Interim Report--The Airworthiness Directive Process Improvement Action Team (dated February 1992). FAA performed a study to "improve the timeliness and quality of airworthiness directives" under the Total Quality Management concept. The FAA study streamlined the AD process, removing six steps from the earlier 15-step process. FAA has implemented the new process at TAD and the Small Airplane Directorate. By 1994, the new process will be implemented in the remaining two directorates, Engine and Propeller and Rotorcraft.

APPENDIX E: ACRONYMS

ACO	Aircraft Certification Office
AD	Airworthiness Directive
AIA	Aerospace Industries Association
ARAC	Aviation Rulemaking Advisory Committee
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FSDO	Flight Standards District Office
FSS	Flight Standards Service
GAO	General Accounting Office
IAR	Immediately Adopted Rule
NPRM	Notice of Proposed Rulemaking
NTSB	National Transportation Safety Board
OIG	Office of Inspector General
PIAT	Process Improvement Action Team
SDMS	Service Difficulty Management System
SDR	Service Difficulty Reporting
TAD	Transport Airplane Directorate
TIS	Time in Service

APPENDIX F: INSPECTION TEAM MEMBERS

Mark E. Peters	Regional Inspections Manager
Catherine Pyles	Deputy Regional Inspections Manager
Larry K. Herdzina	Project Director
Maria Longley	Analyst
Desiree Billerbeck	Analyst
Lois Rasmussen	Administrative Support

APPENDIX G: FAA COMMENTS ON DRAFT REPORT

U.S. Department
of Transportation

**Federal Aviation
Administration**

Memorandum

Subject: INFORMATION: OIG Draft Report on the Inspection of FAA's Responsiveness to Suspected Aircraft Maintenance and Design Problems

Date: DEC 27 1992

From: Assistant Administrator for Budget and Accounting

Reply to Attn of:

To: Assistant Inspector General for Inspections and Evaluations

As requested by your October 20 memorandum, we have reviewed the subject Office of Inspector General (OIG) draft inspection report. Our comments are provided in the attachments.

The report contains four recommendations. We concur with two recommendations and nonconcur with the remaining two recommendations. Our position on each of the recommendations is provided in the attachments.

We appreciate the opportunity to comment on your draft report and request that you incorporate our comments in any final inspection report you may issue.

E. M. Kaling

Nicholas S. Stoer

Attachments

Attachment 1

Federal Aviation Administration (FAA) Position on Recommendations Contained in the Office of Inspector General (OIG) Draft Report on the Inspection of FAA's Responsiveness to Suspected Aircraft Maintenance and Design Problems

OIG REVIEW CONCLUSIONS: The FAA's ability to identify, evaluate, and correct suspected aircraft maintenance and design problems is hampered by inadequate oversight of FAA engineers' activities and decisions and insufficient analysis capability. This conclusion applies primarily to FAA's Transport Airplane Directorate (TAD) which is responsible for addressing a majority of the reported aircraft maintenance and design problems.

The TAD does not adequately track and maintain information on most identified aircraft maintenance and design problems. Such tracking and documentation is critical to ensure proper management oversight and timely responses to reported aircraft problems. These oversight shortfalls are evident in each stage of the continued airworthiness process.

For TAD engineers, an important part of their job is determining the risk of an aircraft problem recurring. If aircraft avionics equipment smokes in service or a propeller corrodes prematurely, the engineer must determine if it is an isolated event or a failure that has occurred before and can be expected to occur again. Such recurring problems (e.g., trends) may indicate a systemic aircraft problem requiring immediate corrective action. TAD's ability, however, to identify and evaluate the risk of recurring aircraft problems is hampered by shortfalls in existing automated systems and/or databases and in engineers' knowledge of how to use database information to do effective trend analysis.

GENERAL FAA COMMENTS:

1. The inspection objectives were to determine the roles of FAA, the National Transportation Safety Board (NTSB), manufacturers, and air carriers in identifying, reporting, and following up suspected design or maintenance problems and to examine how effectively these roles interlock to produce a quick response when necessary. The inspection report, however, focuses only on the part of the program related to trend development and fails to mention the mechanism for continued airworthiness and its effectiveness.

The entire report fails to identify the major role the manufacturers play in continued airworthiness and suspected aircraft maintenance and design problems. As stated in the report, TAD issued 75 percent of all airworthiness directives (AD) issued by the Aircraft Certification Service in 1992. Most of the service problems involved large aircraft manufacturers with whom FAA has formal working procedures for reporting Federal Aviation Regulation (FAR) 21.3 and other service problems. The manufacturers have extensive systems for obtaining timely information regarding on-going service experience and, historically, FAA has relied on its partnership with these manufacturers to effect timely corrective actions when necessary. For example, during an October 15, 1993, FAA/Douglas Aircraft Company (DAC) senior management meeting, the Los Angeles Aircraft Certification Office (ACO) requested that DAC jointly develop with FAA a formalized working agreement which would further enhance the sharing of service information for continued airworthiness oversight and analysis. We feel the best source of data comes from the manufacturers. Our best hope for improvement in our trend analysis and documentation of service problems rests with formalized working procedures that allow cooperative access to the best source of data. We are continuing to work on the development of these working agreements with the major manufacturers.

2. There is a predisposition to a strict hierarchical organization having formally defined processes with frequent points of management oversight. The report implies that it is the role of FAA management to monitor the service difficulties. FAA is moving towards empowerment utilizing the Total Quality Management techniques which place the responsibility for tracking service issues and their corrective actions directly with the engineers and their supervisors. Management's role is to manage the personnel responsible for monitoring service difficulties, hold them accountable for those activities, and provide them with the tools and resources to perform those tasks.

3. The report does not mention that the sources used by the ACO to monitor and follow up on service difficulties are those sources that have historically provided the best information. Manpower limitations prevent the followup of all service difficulties received. For example, over 400 reports on Boeing airplanes may be received in a week from all sources. The additional man-hours needed to increase management oversight, followup on a higher percentage of the reports, and develop a formal tracking system that encompasses all service difficulty reports is not warranted since there is no history of inadequate corrective actions on serious service difficulties.

4. NTSB recommendations are tracked to assure all are properly addressed, but it is noteworthy to mention these recommendations are never FAA's first source of knowledge about problems. FAA is aware of the issues before NTSB recommendations are received. We believe the report overemphasizes the contributions of NTSB.

FAA RESPONSE TO OIG RECOMMENDATIONS:

Issue A: *The TAD's ability to identify and respond to suspected aircraft maintenance and design problems is hampered by inadequate oversight.*

OIG Recommendation 1: *TAD develop and implement a formal tracking system to ensure adequate accountability and timely resolution of reported aircraft maintenance and design problems.*

FAA Response: Nonconcur. We believe the report does not justify the need for such a system. The ACO's within the TAD have in place systems or processes which meet the intent of recommendations 1 and 2. To formalize and devote additional manpower to these tracking systems will distract from major problems and increase the time spent documenting minor problems and those not related to design. This will also take time away from type certification activity and is likely to produce more problems in the long run. For example, there is no value to researching each and every record in the service difficulty reporting (SDR) database since the FAA can establish that 99 percent of them are not significant, do not constitute an unsafe condition, are not a design issue, or have been identified elsewhere. The report states that "FAA's (and, in turn, TAD's) ability to identify and respond to suspected aircraft maintenance and design problems is hampered by inadequate oversight." Yet no specific examples were provided to support this conclusion. There are no known examples within the Aircraft Certification Service where safety action was not taken as a result of inadequate oversight or the lack of a formal tracking system.

Both the Los Angeles and Seattle ACO's already have tracking systems in place for AD's, FAR 21.3 reports, incidents and accidents, and National Transportation Safety Board safety recommendations. These tracking systems are adequate and should not be changed.

In 1976, a service difficulties program was set up in the Western-Pacific Region ACO. This program is still very active today in the Los Angeles ACO. The ACO Manager conducts a monthly meeting attended by all branches. Current service difficulties are discussed and reasons for any action delinquencies or delays are addressed. Engineering judgment and failure analysis play an important role in determining the action to be taken.

The Seattle ACO uses a similar approach with their Continued Operational Safety Program (COSP) which provides them with a method of documenting their research and action on suspected aircraft problems. We believe these programs are valuable tools that should be mentioned in the report.

Further, the TAD is pursuing the utilization of the Rotorcraft Directorate's Automated Service Difficulty Tracking System to supplement their present systems and assist them in tracking problems on aircraft such as the Robinson and McDonnell Douglas Helicopter Company rotorcraft.

Supervisors and managers need to be informed of the problems under review and the status of the corrective actions. However, determination of the appropriate method for tracking these problems and corrective actions should be left to the branch or section since the needs of each engineering branch can be different. The FAA should rely on its engineering talent to make decisions at the lowest possible level.

Recommendation 2: *TAD develop and implement standard procedures for documenting research of suspected aircraft problems.*

FAA Response: Nonconcur. We do not believe that it is necessary to research each and every event listed in the service difficulty reporting (SDR) database since we can immediately establish that the majority of events are not significant, do not constitute an unsafe condition, are not a design issue, or have been identified elsewhere. However, analyses are conducted on problems that appear to be airplane directorate material. For example, within the Seattle ACO, COSP provides the vehicle for problem identification and resolution. The use of COSP assures that service difficulties are properly addressed and the results are documented.

Issue B: *The TAD's ability to identify and evaluate suspected aircraft maintenance and design problems is hampered by insufficient analysis capability.*

Recommendation 3: *FAA correct SDR Program deficiencies and/or invest in an alternate source(s) to facilitate trend analysis of aircraft problems.*

FAA Response: Concur. This is essentially the same recommendation made by the General Accounting Office (GAO) in Report RCED-91-24, Changes Needed in

FAA's Service Difficulty Reporting Program, dated March 1991. Since FAA implemented the necessary corrective action and the Department has closed out this recommendation with the GAO, we do not believe that further action is necessary. In 1991, FAA requested the Aviation Rulemaking Advisory Committee (ARAC) to review the SDR program and to propose changes to those areas of the program needing improvement. The ARAC accepted this task and formed a workgroup to address the issue. The workgroup has completed a draft notice of proposed rulemaking (NPRM) for changes to the SDR reporting rules. The FAA is presently providing support to complete the economic and legal reviews that must occur before the NPRM can be published in the Federal Register.

The SDR ARAC workgroup and the FAA Flight Standards Service agree that deficiencies in trend analysis capabilities should be considered part of the ARAC's original task. Both agree that it would be most appropriate for the workgroup to standardize the reporting by operators before proceeding to the deficiencies in trend analysis capabilities.

The inspection report gives trend analysis too much credit as a means to determine whether an AD is needed. If trend analysis was heavily relied on, FAA could argue against writing specific AD's. Trend analysis more properly tracks reliability problems. Component failure does not necessarily mean an unsafe condition since design philosophy requires fail-safe design. AD's are written because of the magnitude of the safety concern and not because of the number of events, except when multiple failures may result in an unsafe condition. On the other hand, numerous areas of concern can be statistically reliable with no apparent trend, but failure can result in a catastrophe (i.e., MU-2 propeller failure and DC-10 fan disk failure, Sioux City). Trend analysis techniques may be used to identify safety problems with respect to component failures as a result of fatigue and vibration, such as in helicopters. But these same techniques provide little benefit to the determination of safety problems on transport category aircraft where redundant design philosophies are used and critical components are generally not exposed to the same levels of fatigue and vibration.

Recommendation 4: *FAA's Flight Standards Service develop trend analysis guidelines and communicate these guidelines to TAD. The guidelines should address the use of SDR (and/or alternate systems) in conducting trend analysis of suspected aircraft problems.*

FAA Response: Concur. Refer to response to recommendation 3.

Attachment 2

Federal Aviation Administration (FAA) Comments of an Editorial/Clarification Nature on the Office of Inspector General (OIG) Draft Report on the Inspection of FAA's Responsiveness to Suspected Aircraft Maintenance and Design Problems

Page 1: The use of the term "alternate fix" on pages 1 and 10 and throughout the report is misleading. There is no "alternate fix" to an airworthiness directive (AD) when an unsafe condition has been identified. If a critical safety problem exists, and it could exist on other products of the same type design even though only a handful of aircraft are affected, the only course of action for FAA is to issue an AD.

Further, the report ignores the manufacturers' and operators' responsibilities for safety in design and operation. Figure 1 omits the major role manufacturers play in the continued airworthiness process. We recommend this figure be revised to depict the manufacturers' role in working with the FAA to resolve safety problems.

Page 9: The report neglects to include the manufacturers' role during the evaluation of data pertaining to the suspected aircraft problem. The certification engineers do not perform all of the work necessary to resolve problems. Some of the work is performed by the manufacturers which the certification engineers oversee.

The inspection report does not give adequate credit to the manufacturers' databases. The large aircraft and engine manufacturers maintain accurate and comprehensive service difficulty databases. The FAA cannot attempt to compete with these databases. It would be costly, cumbersome, labor intensive, and most likely unreliable. The manufacturers utilize their databases to track on-going service experience. It should be noted that FAA relies on partnerships with these manufacturers to effect timely corrective actions of safety related problems.

The report refers twice to the Seattle ACO Manager's statement that mishandling of service problems is an employee performance problem. We believe the statement was taken completely out of context. The Seattle ACO manager was trying to explain the concept of empowerment and accountability. The report infers that detached, uninvolved managers punish employees when things go wrong. We believe these references are subject to misinterpretation by the reader. The report does not give credit to the systems established within the Los Angeles and Seattle ACO's for assuring that engineering personnel are held accountable for responding to significant service difficulties and that management does provide adequate oversight.

Page 12: The report states that "work on a propeller failure was delayed several months while the engineer worked on two airworthiness concerns which he considered more urgent. Only when a second, identical propeller failure occurred did the original aircraft problem become top priority again." This does not accurately describe the case. The first propeller failure was believed to be an isolated event until the second identical failure occurred.

Pages 15-17: The discussion of the rulemaking process identifies the need for formal tracking systems suggesting that the slow rulemaking process could be expedited through the use of such systems. The OIG Office of Inspections and Evaluations recently conducted a review of the Department's rulemaking process and made six recommendations for improvement. Untimely rulemaking must be a universal problem since a Departmentwide review was conducted. Therefore, this report should not be couched as though slow rulemaking is an isolated case related to TAD.

Page 15: If chart 4 is based on data in appendix C, page 33, then chart 4 should be updated to reflect the corrections recommended to page 33, appendix C. The chart may not depict such a slow system if it is updated with the corrections stated for appendix C.

Page 23: The task referenced in the report was a separate effort strictly focusing on the Boeing aircraft and was not the result of the OIG Hotline complaint and the associated Report to Congress. The referenced task did not have the same level of priority as did the OIG Hotline complaint and Report to Congress. The inspection report as written leads the reader to believe it applied to all aircraft and was the same effort associated with the Congressional report. The smoke-in-the-cockpit study did not use SDR data obtained by formal request to the Aeronautical Center. Instead, special software and a modem installed in a personal computer were used to compose and send SDR database query requests to, and receive data from, an intermediary computer operated by an FAA contractor. The referenced study was an on-going study conducted over a period of 3 years to try to identify smoke-in-cockpit trends on Boeing aircraft only.

Page 27, Appendix A: In table 3, Chronology of Events for Propeller Hub Failure, the second description of event for date 4/28/93 should read "FAA issues Priority Letter AD 93-09-04 calling ...."

The following entry should be added to Table 3:

6/10/93 FAA, after finding a crack pursuant to AD 93-09-04 issues AD 93-12-01 requiring the MU-2B-26A, -36A, and -40 aircraft to undergo the same inspection requirements.

Page 29: The last three sentences of the second to the last paragraph should be revised to read as follows: "Examination of some 50 of the approximately 250 propellers requiring inspection under AD 93-09-04 found one additional crack. As a result, the manufacturer released Revision A to Alert Service Bulletin 183 calling for expansion of the propeller hub inspection to three other closely related aircraft models. The FAA released Priority Letter AD 93-12-01 on June 10, 1993, requiring the MU-2B-26A, 36A, and 40 aircraft to undergo the same inspection. To date, only the one cracked hub described above has resulted from the approximately 394 of the 474 total propellers required to be inspected per AD 93-09-04 and AD 93-12-01."

Page 33, Appendix C: The tables in this appendix are seriously flawed. The method for calculating the time frames was not specified in the report and it is not clear how the time frames were determined (i.e., were they counted from the very beginning of the noted problem, development of the service bulletin, or by some other means). Even if these items were taken into consideration, the telegraphic AD, as noted below, still only took 4 days to publish. We suggest the following table corrections be made to accurately reflect the total number of days:

Sample No. 5	AD T92-21-51 Op/Man	175 days (FAA records reflect 4 days)
Sample No. 6	AD 92-04-01 Op/Man	242 days (FAA records reflect 55 days)
Sample No. 7	AD 92-04-07 Daily Alert Bulletin	48 days (FAA records reflect 14 days)
Sample No. 8	AD 92-05-01 Facsimile	127 days (FAA records reflect 35 days)
Sample No. 9	AD 92-10-08 Accident/Incident	176 days (FAA records reflect 14 days)

REPORT ON AUDIT OF THE CERTIFICATION AND SURVEILLANCE OF DOMESTIC AND FOREIGN REPAIR STATIONS
FEDERAL AVIATION ADMINISTRATION

REPORT NUMBER: R4-FA-4-009

DATE ISSUED: March 7, 1994

Audit of the Certification and Surveillance of Domestic and Foreign Repair Stations

Federal Aviation Administration

Report No. R4-FA-4-009 March 7, 1994

SYNOPSIS

Conclusions

The Federal Aviation Administration (FAA) has established an adequate certification process for new repair stations. Also, FAA aviation safety inspectors accomplished approximately 98 percent of the required domestic and 99 percent of required foreign repair station annual surveillance inspections, tracked repair station violations, and recorded inspection results. However, our audit of 4 Flight Standards District Offices, 2 International Field Offices, 4 domestic and 10 foreign FAA-approved repair stations disclosed use of aircraft parts of unknown design, quality and origin; outdated repair manuals; substitute parts not approved by manufacturers; and parts repaired by subcontractors not approved by the FAA. At 12 of the repair stations we reviewed, of those parts sampled, 43 percent of all newly purchased parts, and 95 percent of parts purchased from distributors or brokers did not have reasonable evidence of either FAA production approval status, production origin, or conformance with established U.S. or industry specifications. Likewise, we also found: 5 repair stations used 11 outdated manufacturers' maintenance manuals for 47 repairs; 8 repair stations used 27 types of parts not listed in the most current manufacturers' maintenance manuals; and 3 repair stations subcontracted repair of 16 types of parts to repair stations not regulated by FAA.

Monetary Impact

We did not recommend a recovery or better use of funds. Implementation of our recommendations should improve the internal control system of regulations, technical guidance, and surveillance activities for FAA certified repair stations.

Recommendations

We designed our recommendations to address three areas of weakness. We made six recommendations designed to provide better assurance that replacement aircraft parts are FAA-approved, four recommendations designed to provide better targeting of repair stations for FAA surveillance, and five recommendations designed to improve FAA surveillance of repair stations. In addition, we recommended that FAA report these three areas as a material internal control weakness.

Management Position

The FAA Administrator concurred with six recommendations, partially concurred with three recommendations and did not concur with seven recommendations. Overall, the Administrator did not agree that the weaknesses identified by this report were sufficiently material to be reported to the Secretary and Congress. To provide better assurance that replacement aircraft parts are approved by FAA, the Administrator agreed to revise an advisory circular and clarify, or study clarification of, FAA regulations. He also suggested development of a voluntary accreditation program for distributors and brokers. To provide better targeting of repair stations for FAA surveillance, he agreed to redefine repair station ratings, identify safety trends, and train inspectors in areas of repair station weaknesses. However, he did not agree to require domestic repair stations to submit data regarding the volume or criticality of aircraft repairs. To improve FAA surveillance of repair stations, the FAA Administrator increased documentation required of inspectors. However, he did not agree to assess repair quality or to test repair output. Likewise, he did not agree to specify consistent amounts or types of inspection tests or to clarify follow-up actions.

After analysis of the Administrator's response, we continue to conclude that a material internal control weakness exists. Distributor and broker regulation, repair station activity information, and FAA inspection discipline are essential corrective actions. Although the response indicated concurrence with six recommendations, we agree with the corrective actions planned and taken on only three. We requested FAA reconsider its response on eight recommendations and implement the recommended corrective actions. For five recommendations, we concluded the response did not provide sufficient data for us to fully evaluate FAA's position and requested additional information.

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Memorandum

Subject: **INFORMATION/ACTION:** Report on Audit of the Certification and Surveillance of Domestic and Foreign Repair Stations, Report No. R4-FA-4-009

Date: March 7, 1994

From: A. Mary Schiavo Mary Schiavo
Inspector General

Reply to Attn of: JA-1

To: Federal Aviation Administrator

This is the report on our audit of Certification and Surveillance of Domestic and Foreign Repair Stations by the Federal Aviation Administration (FAA). The audit objectives were to evaluate FAA internal controls established to: (i) certify only qualified repair stations, (ii) conduct surveillance inspections that assure repair station compliance with the Federal Aviation Regulations (FAR), (iii) track repair station violations until corrective actions are complete, and (iv) accurately record and share inspection results. To perform its repair station certification and surveillance role, the FAA has 89 Flight Standards District Offices (FSDO) and 5 International Field Offices (IFO) staffed with approximately 2,700 aviation safety inspectors. Collectively, they have oversight responsibility for about 4,400 domestic and 344 foreign repair stations.

We concluded FAA has an adequate certification process for new repair stations. Also, FAA aviation safety inspectors accomplished approximately 98 percent of the required domestic and 99 percent of required foreign repair station annual surveillance inspections, tracked repair station violations, and recorded inspection results. However, our audit of 4 FSDOs, 2 IFOs, 4 domestic and 10 foreign FAA-approved repair stations disclosed use of aircraft parts of unknown design, quality and origin; outdated repair manuals; substitute parts not approved by manufacturers; and parts repaired by subcontractors not approved by the FAA. At 12 of the repair stations we reviewed, of the parts sampled, 43 percent of all newly purchased parts and 95 percent of the parts purchased from distributors or brokers did not have reasonable evidence of either FAA production approval status, production origin, or conformance with established U.S. or industry specifications. Likewise, we also found: 5 repair stations used 11 outdated manufacturers' maintenance manuals for 47 repairs; 8 repair stations used 27 types of parts not listed in the most current manufacturers' maintenance manuals; and 3 repair stations subcontracted repair of 16 types of parts to repair stations not regulated by the FAA. As a result, owners and operators do not have reasonable assurance aircraft maintenance and repair conforms with FAA aircraft airworthiness certificate requirements for type design and condition of safe operation. (See page 10.)

Our audit disclosed the need to improve the clarity of the FARs and FAA technical guidance, the prioritization of surveillance inspections, and the quality of surveillance inspections and reports. We concluded FAA's internal control system of regulations, technical guidance, and surveillance activities should be revised to provide more reasonable assurance that repair stations perform aviation repairs with approved parts and procedures. Because weaknesses we identified could adversely affect the Department of Transportation (DOT) and the public, these weaknesses meet the DOT materiality criteria and should be reported to the Secretary for inclusion in his report to the President and Congress on management controls as required by the Federal Managers' Financial Integrity Act (FMFIA) of 1982.

We did not recommend a recovery or better use of funds. Implementation of our recommendations should improve FAA's surveillance internal control system of regulations, technical guidance, and surveillance activities for FAA-certified repair stations. These improved controls should benefit all segments of the aviation industry through better assurance that repair stations use: (i) FAA-approved aircraft parts or parts that conform to established U.S. or industry specifications, (ii) current manufacturers' maintenance manuals, (iii) parts specified in manufacturers' maintenance manuals, and (iv) subcontractors who are authorized repair stations.

During the audit, FAA officials initiated action on issues raised in this report. To identify the initiatives undertaken by the FAA to address the problem of unapproved parts in the aviation industry, we met with FAA Headquarters management and technical staff. We determined FAA has developed specific training programs for FAA personnel and members of the aviation industry. These training programs focus on detecting unapproved parts. To facilitate the reporting of suspected unapproved parts and track corrective actions taken, FAA implemented a Suspected Unapproved Part (SUP) program. To encourage and ease the reporting of SUPs, FAA publicized the telephone number of its national aviation safety hotline in SUP publications for distribution to the public. To record, track, and evaluate SUPs, FAA has developed a Headquarters and field SUP specific organizational structure. The FAA also developed an educational brochure and video tape for free distribution to the aviation industry. In addition, the FAA has work groups reviewing parts regulations and technical guidance to clarify and make improvements. To more effectively use its resources, the FAA is developing a statistically based management feedback system to channel the results of SUP reports and investigations, and routine surveillance inspections, into a single source to focus surveillance on known areas of weakness. (See page 30.)

We have summarized the FAA response to our draft report. This summary is located in the management response section at the end of the finding. The FAA response is also included in its entirety as an appendix to this report. Our comments on the response are summarized in the following paragraphs and presented in more detail in the auditor comments section at the end of the finding.

On February 17, 1994, the FAA Administrator responded to our draft report dated December 17, 1993. Overall, the Administrator did not agree that the weaknesses identified by this report were sufficiently material to be reported to the Secretary and Congress in accordance with FMFIA. Citing FAA's recently instituted program to identify and resolve SUPs, the Administrator concluded that the high level of oversight implemented by the SUP program made reporting of previous weaknesses unnecessary. In an attachment to his response, the FAA Administrator also provided specific comments to the remaining fifteen audit recommendations.

For six recommendations designed to provide better assurance that replacement aircraft parts are FAA-approved, the FAA Administrator agreed with two, partially agreed with three, and disagreed with one audit recommendation. He agreed to clarify an advisory circular regarding part documentation and regulations prescribing repairs made by unregulated repair stations. He suggested providing our recommendation for more clearly marking parts to FAA's regulatory advisory group and suggested that data regarding FAA approval status of manufacturers, drop-shippers, and repair stations be provided by commercial sources. Although the Administrator did not agree to expand FAA regulatory authority to cover parts distributors and brokers, he did agree to support voluntary accreditation of parts distributors and brokers by FAA-sanctioned third parties. The Administrator did not agree to revise FAR Part 43 to clarify substitution of replacement parts.

For four recommendations designed to provide better targeting of repair stations for FAA surveillance, the FAA Administrator expressed agreement with three and disagreement with one recommendation. He agreed to redefine repair station ratings, identify safety trends, and train inspectors in areas of repair station weaknesses. However, he did not agree to require domestic repair stations to submit data regarding their volume or criticality of aircraft repairs.

For five recommendations designed to improve FAA surveillance of repair stations, the FAA Administrator agreed with one and disagreed with four recommendations. Meeting the intent of our recommendation, he said that documentation required of FAA inspectors had recently been increased. However, he did not agree to shift FAA assessment of repair stations away from required processes toward repair performance or to test repair output. Likewise, he did not agree to require FAA inspectors to consistently perform specific amounts or types of testing based upon statistical principles or to clarify follow-up actions when repairs are identified using parts or subcontractors not known to be approved.

After careful analysis of the FAA Administrator's response, we have concluded that the actions proposed are not sufficient to provide reasonable assurance aircraft maintenance and repair will conform to FAA aircraft certificate requirements. In each of three areas of identified weakness, the Administrator declined to implement action essential to correction. To provide better assurance that replacement aircraft parts were approved by FAA, a complete trail of custody must be available. This trail of custody will remain significantly incomplete until the large number of parts purchased from distributors and brokers are subject to regulation. Similarly, to provide better targeting of repair stations for FAA surveillance, information about the volume and criticality of aircraft repairs and maintenance performed by domestic repair stations is essential. The current surveillance approach requiring the same level of inspection regardless of volume or criticality of repair is inefficient and ineffective. Likewise, to improve FAA surveillance of repair stations, more specific measures of repair station performance coupled with more consistent and disciplined inspection and followup are needed. Considering the absence of sufficient corrective action in all three of these areas, we continue to conclude that these weaknesses represent a material internal control deficiency which should be reported to the Secretary and Congress until resolved. Although the SUP program may significantly improve resolution of aircraft parts identified as questionable, it does not preclude use of parts and subcontractors not known to be FAA approved or provide reasonable assurance that maintenance and repairs are performed in accordance with the latest approved procedures.

Based upon your response and our analysis, Recommendations 1, 3.b, and 4.d are resolved and no further action is required. However, we request your reconsideration of Recommendations 3.a, 4.a, 5, 6, 7, 9, 10, and 12. In addition, we request additional information and target implementation dates for Recommendations 2, 4.b, 4.c, 8, and 11. In accordance with DOT Order 8000.1C, within 60 days of this report, please provide us with a supplemental response on the unresolved recommendations.

A copy of this report will be forwarded to the Office of Management and Budget (OMB) Circular A-123 Coordinators in the Department and the FAA because of the material internal control weaknesses reported.

If I can answer any questions or be of any further assistance, please feel free to call me on 366-1959 or my Deputy, Mario A. Lauro, Jr., on 366-6767.

cc:
Departmental Resident Office, GAO-2
OST Audit Followup Liaison, M-20
DOT OMB Circular A-123 Coordinator, M-80
FAA Audit Liaison/OMB Circular A-123 Coordinator, AAA-60

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I. INTRODUCTION

Background

The Federal Aviation Act of 1958, as amended, empowers the Secretary of Transportation to examine and rate repair stations as to the adequacy and suitability of the equipment, facilities, material and methods for the repair, alteration, maintenance, and overhaul of aircraft, aircraft engines, propellers, and appliances. To implement this section of the Federal Aviation Act of 1958, the FAA promulgated the FARs in Title 14 of the Code of Federal Regulations, Part 145. Part 145 prescribes the requirements for issuing repair station certificates and associated ratings to facilities for the maintenance and alteration of airframes, powerplants, propellers, or appliances and prescribes the general operating rules for the holders of those certificates and ratings.

FAR Part 145.2 states that each repair station that performs work for an air carrier or commercial operator having a continuous airworthiness program shall perform that work under the applicable operator's regulations and in accordance with the air carrier's or commercial operator's manual. Otherwise, the repair station shall perform its work in accordance with the rules governing the maintenance, preventive maintenance, rebuilding, and alteration of aircraft, engines, propellers, and appliances as contained in FAR Part 43.

Airworthiness certificates are issued by the FAA to owners of U. S. registered aircraft if the aircraft conforms to an FAA-approved type design and is in condition for safe operation. Aircraft cannot be operated unless these airworthiness certifications remain current. For airworthiness certifications to remain current, the maintenance, preventive maintenance, and alterations must be performed in accordance with either an air carrier or commercial operator's FAA-approved maintenance manual or FAR Part 43.

Repair Station Categories

A repair station's certificate specifies the types of maintenance it can perform and the types of components and aircraft it can repair. FAR Part 145 divides maintenance and repair activities into six main categories: airframe, powerplant, propeller, radio, instrument, and accessory. Some repair stations specialize in one of these specific maintenance and repair categories, while others may specialize in several. The FARs further break down the six main categories into subcategories called "classes" depending on the types of repairs performed. In addition to limiting the types of repairs or maintenance a repair station can perform, FAA may limit the scope of a repair station's activities. For example, a repair station certificate may be limited to a specific make and model of aircraft, engine, or part.

Inspection Systems

FAR Part 145.45 requires each repair station to have an inspection system that produces satisfactory quality control. This quality control system must provide a satisfactory method of inspecting incoming material to ensure the material is in a good state of preservation and is free from apparent defects or malfunctions before repair stations add it to inventory. Additionally, the repair station must maintain a manual containing the internal inspection system of the repair station.

FAA Oversight

FAA repair station oversight is divided into two phases, certification and surveillance. The certification phase includes a physical inspection of a repair station to ensure the applicant's proposed procedures are effective and the facilities and equipment meet regulatory requirements. After issuance, a domestic repair station's certificate is permanent until it is surrendered by the applicant or revoked by the FAA. For foreign repair stations, FAA requires recertification every 2 years. Subsequent to certification, during the surveillance phase, FAA National Program Guidelines (NPG) require FAA aviation safety inspectors to perform a facility inspection of each domestic and foreign repair station annually. The FSDOs are the field offices responsible for surveillance of domestic repair stations and the IFOs are responsible for surveillance of foreign repair stations. As of October 1993, the FAA had approximately 2,700 aviation safety inspectors at 89 FSDOs and 5 IFOs with oversight responsibility for approximately 4,400 domestic repair stations and 344 foreign repair stations.

Aircraft Parts Approval Regulations

According to FAR Part 21.305, whenever a material, part, process, or appliance is required to be approved, it may be approved under a Parts Manufacturer Approval (PMA), under a Technical Standard

Order issued by the Administrator, in conjunction with type certification procedures, or in any other manner approved by the Administrator. See Exhibit A for the types of FAA production approval holders (PAH) and Exhibit B for aircraft parts approval background data. FAR Part 43.13(b) requires each person maintaining or altering or performing preventive maintenance to ". . . use materials of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly altered condition (with regard to aerodynamic function, structural strength, resistance to vibration and deterioration, and other qualities affecting airworthiness)." In addition, FAR Parts 91.403, 121.363, 127.131, and 135.413 assign the ultimate responsibility for the airworthiness of an aircraft to its owner/operator.

Objectives, Scope, and Methodology

We performed the audit in accordance with the Government Auditing Standards prescribed by the Comptroller General of the United States and included such tests of procedures, records, and operations data as were considered necessary in the circumstances. The audit objectives were to evaluate FAA internal controls established to: (i) certify only qualified repair stations, (ii) conduct surveillance inspections that asaure repair station compliance with the FARs, (iii) track repair station violations until corrective actions are completed, and (iv) accurately record and share inspection results.

We conducted a performance audit of 4 domestic repair stations and 4 FSDOs in FAA's Southern Region and 10 foreign repair stations and 2 IFOs in FAA's African, Middle East, and European Region. We selected repair stations based on the volume, category, and class of repairs performed for U.S. registered aircraft. The facilities included in the audit are listed in Exhibit C.

At each repair station, we selected work orders for repairs performed for U.S. registered aircraft. We performed the following audit tests:

Sources of Parts - We traced selected aircraft parts to invoices and related documentation. We evaluated the documentation for 587 different types of parts (31,508 individual parts). Repair stations either purchased new parts, subcontracted parts for rework or repair, or salvaged and inspected parts from other units. Because repair stations usually purchased, subcontracted, or inspected several parts of the same type at the same time, repair station documentation frequently applied to many more parts than we originally selected from repair records. Thus, the invoices and related documentation we audited included 495 different types of parts (29,462 individual parts) purchased new, 61 different types of parts (1,643 individual parts) subcontracted, and 31 different types of parts (403 individual parts) salvaged. When we could identify the manufacturers, we contacted them to verify FAA production approval. We also contacted other repair stations used as subcontractors to verify FAA approval and to identify repair ratings.

We used the five criteria specified by FAA in Advisory Circular (AC) 20-62C to identify approved parts where applicable. We also used common standards of good business practices as criteria to determine whether there was reasonable assurance that all parts were either approved by the FAA for use in the repair of U.S. registered aircraft or conformed to established industry or U.S. specifications. Thus, we suspected a part as potentially unapproved if the repair station could not provide reasonable proof, in the form of purchase documents and/or physical markings, to show the intended use of the part, its manufacturer, FAA approval status, or evidence of conformance with established industry or U.S. specifications.

We based the depth of our review on whether the repair stations acquired the sampled items directly from a manufacturer or from a parts distributor or broker. FAA production approval for parts supplied directly from a manufacturer is relatively easy to assess. Therefore, we applied less stringent review criteria to verify the approval status of parts acquired directly from manufacturers. A large percentage (45 percent) of the different types of parts we reviewed were acquired from aircraft parts distributors or brokers, a nonregulated segment of the aircraft repair industry. Because distributors or brokers are not regulated by the FAA and there are no standard record-keeping requirements, we found it more difficult to determine the production origin, FAA production approval status, or conformance with established industry or U.S. specifications for parts purchased from distributors or brokers. We noted that a distributor or broker frequently handles many different types of parts and the opportunity for a part to become separated from its documentation was increased. We considered the risk of unapproved parts (including nonconforming standard parts) entering the aircraft repair industry to be higher for parts supplied by distributors or brokers. We therefore, developed additional review criteria for these parts.

For each type of part selected for evaluation, we applied the following OIG established criteria to reach an objective conclusion on whether the repair stations could conclusively prove the production origin, FAA approval status, and/or conformance with established industry or U.S. specifications.

Aircraft Parts Acquired Directly from a Manufacturer

(i) invoice from the manufacturer including the part number,

(ii) proof of FAA production approval or adherence to established industry or U.S. specifications, and

(iii) a part number reference in the manufacturer's most current maintenance/overhaul manual.

Aircraft Parts Acquired from a Distributor or Broker

(i) invoice from the distributor or broker including the part number,

(ii) marking of the part or packaging with the part number,

(iii) marking of the part or the packaging to identify the manufacturer,

(iv) a part number reference in the manufacturer's most current maintenance/overhaul manual, and

(v) part documentation identifying the part number and manufacturer and citing compliance with a specific FAR to evidence the manufacturer was approved by FAA or evidence the parts conformed with established industry or U.S. specifications.

Maintenance Manual Revision Dates - We reviewed the applicable manufacturers' maintenance manuals and recorded the revision date on hand at the repair station. We then contacted the manufacturers to verify the current revision dates for each manual. We compared the current date to the date of the repair station's manual.

Illustrated Parts List - We verified that repair stations used parts that manufacturers recommended in their maintenance manuals. When we identified part substitutions, we contacted the appropriate manufacturers to determine if they approved of the substitute parts.

Supervisors and Inspectors - We audited employee records to identify the qualifications of supervisors and inspectors at domestic repair stations. For foreign repair stations, we verified the supervisors and inspectors were on authorized lists.

Our audit covered FAA certification and surveillance activities during Fiscal Years (FY) 1991 and 1992. Where necessary to track work order and purchase order data, we performed work in prior periods. This report summarizes audit work performed between January 1992 and May 1993.

Internal Controls

The audit included an evaluation of the internal controls established by FAA over the certification and surveillance of repairs performed by both domestic and foreign repair stations. Specifically, we determined whether FAA certification and surveillance controls provided reasonable assurance repair stations used: (i) FAA-approved parts; (ii) current manufacturers' maintenance manuals; (iii) authorized parts as detailed in the manufacturers' maintenance manuals; and (iv) qualified supervisors, inspectors, and technicians. To determine the effectiveness of these controls, we audited repair work orders, aircraft logbook entries, manufacturers' maintenance manuals, invoices, part certifications, part markings, and employee records. We also accompanied FAA maintenance inspectors on actual inspections of repair facilities and interviewed FAA management and repair station officials. See page 20 for details of internal control weaknesses identified during our audit and improvements needed in FAA's internal control system of regulations, technical guidance, and surveillance activities for FAA-certified repair stations.

Prior Audit Coverage

OIG Report No. R6-FA-7-134, dated May 22, 1987, disclosed FAA was not acquiring new aircraft parts from approved manufacturers or adequately obtaining and controlling serviceability data for overhauled aircraft parts. The report also disclosed FAA was vulnerable to installing substandard parts on its aircraft and invalidating its airworthiness certificates. We recommended FAA require proof of purchase from approved manufacturers for new aircraft parts and clarify the requirements for work orders, the quality of work orders, and the type of reviews to be performed. We also recommended FAA provide for adequate supervisory oversight to ensure requirements are met, provide for a more structured and complete review of the flow of certified data to ensure the proper receipt, inspection, and filing of required documents and provide for developing and maintaining a complete listing of aircraft parts requiring a serviceability determination. In response, FAA developed interim guidelines for the receipt of aircraft parts requiring a serviceability determination. The guidelines required FAA personnel to review material for source of origin and establish the acceptability of certification documentation.

OIG Report No. R6-FA-9-078, dated March 17, 1989, disclosed FAA did not plan discretionary inspections in accordance with criteria set forth by the FAA Administrator. The report also disclosed FAA may not have accomplished its goal of devoting 35 percent of inspectors' time to surveillance and inspectors may be sacrificing the quality of their inspection effort so they can report more inspections. We recommended FAA establish a level monitoring system to review inspection plans and schedules for conformance with national goals. Management concurred with the findings and recommendations.

OIG Report No. R9-FA-1-017, dated November 29, 1990, disclosed that surveillance of repair stations and Designated Mechanic Examiners (DMEs) did not fully comply with FAA requirements. Specifically, FAA did not always plan required inspections and planned inspections were not always accomplished. The report also disclosed that inspectors did not fully assess the quality of work performed. We recommended FAA emphasize the importance of including all repair stations and DMEs in annual plans, accomplishing all planned inspections, and utilizing resources for the highest priority work. We also recommended FSDO supervisors ensure inspectors are knowledgeable of inspection requirements and review the quality of inspections. Additionally, we recommended that more emphasis be placed on completing evaluations of FSDOs to ensure each FSDO is performing its functions effectively and in conformance with national and regional guidelines. OIG also issued Report No. R9-FA-3-106, dated September 29, 1993 titled Surveillance of Designated Mechanic Examiners. In this report, the OIG concluded FAA surveillance of DMEs was not adequate and FAA cannot be assured that only qualified mechanics were certified as aviation mechanics. Agreed upon action has not been fully completed on the 1990 report. In the reply to the 1993 report, FAA agreed with our finding and identified specific actions taken or planned.

OIG Report No. R6-FA-2-084, dated May 29, 1992, disclosed (i) aircraft inspections by FAA pilots did not conform with standards applied to the aviation industry, (ii) about 23,000 required inspections were not accomplished during FY 1989 while about 225,000 discretionary inspections were completed, (iii) aircraft inspections were of questionable quality, (iv) inspectors did not report all violations identified during inspections, and (v) FAA did not report instances of fraud identified during inspections to the OIG. The OIG made 14 recommendations to clarify FAA policy and procedures and strengthen supervision of inspectors. FAA is in the process of implementing significant changes in the inspection process.

OIG Report No. R6-FA-3-036, dated February 5, 1993, disclosed that about 39 percent of the line items in the FAA Logistics Center aircraft parts inventory contained parts not manufactured by or traceable to FAA-approved manufacturers. Consequently, parts not conforming to current aircraft certification requirements were installed on FAA aircraft and FAA paid for aircraft parts it cannot now use. Also, Quality Control Inspectors did not report suspected unapproved parts for investigation as requested by FAA AC 21-29. The report contained seven recommendations to: clarify FAA policy on acquiring and using certified aircraft parts; improve internal control procedures; provide training for contracting officers, inventory managers, and Quality Control Inspectors; dispose of unapproved parts; and report suspected unapproved parts for investigation. The FAA Office of Aviation System Standards and Aeronautical Center management concurred with all recommendations and actions taken or planned were reasonable.

General Accounting Office (GAO) Report No. RCED-90-36, dated November 13, 1989, disclosed FAA did not provide adequate supervision, as required by Government standards for internal controls, to ensure that its national inspection policies are being followed by local staff who implement those policies. The report further stated FAA cannot guarantee the reliability of the inspection information contained in its annual reports to Congress because of inaccurate and unreliable data. GAO recommended the

Secretary of Transportation direct the FAA Administrator to provide adequate supervision to ensure that national FAA inspection policies are followed by the local FAA staffs who are responsible for implementing the required national work program. Also, GAO recommended the Secretary direct the Administrator to establish adequate checks of data entered into FAA's system to ensure the information on inspections in the system is complete and accurate.

GAO Report No. RCED-92-14, dated November 20, 1991, reported FAA lacks important information on program performance and is not in a position to adequately ensure accomplishment of key program elements. GAO also found FAA has not analyzed Program Tracking and Reporting System (PTRS) inspection data to assess performance against stated requirements or determined whether the level of effort set by the requirements is valid. In addition, the report stated the inspectors did not fulfill the required 35 percent time allocation in FY 1990. GAO recommended the Secretary of Transportation direct the FAA Administrator to improve the inspection reporting system by providing inspectors clear definitions of comment codes, requiring inspectors to record corrective actions taken, and developing and using criteria for determining the severity of problems identified. DOT management generally concurred with the recommendations given in the report.

II. FINDING AND RECOMMENDATIONS

Finding. FAA Surveillance and Regulation of Repair Stations Should be Improved

FAA approved repair stations performed repairs for U.S. registered aircraft using aircraft parts of unknown design, quality, and origin and may not have fully complied with FAR Part 43 maintenance regulations. We found: (i) 12 repair stations used 213 types of parts (14,232 individual parts) that lacked reasonable evidence, as defined by the OIG, to verify either FAA production approval status, production origin, or conformance with established U.S. or industry specifications; (ii) 5 repair stations used 11 outdated manufacturers' maintenance manuals to perform 47 repairs; (iii) 8 repair stations used 27 types of parts (61 individual parts) not listed in the most current manufacturers' maintenance manuals; and (iv) 3 repair stations subcontracted 16 types of parts (19 individual parts) to repair stations not regulated by FAA. FAA could better detect and correct these practices by conducting more in-depth surveillance inspections of repair stations and identifying and refining FARs and technical guidance. As a result, until FAA surveillance, FARs, and technical guidance are improved, owners and operators do not have reasonable assurance aircraft maintenance and repair conforms with FAA aircraft airworthiness certificate requirements for type design and condition of safe operation.

Discussion

At the 4 domestic and 10 foreign repair stations we visited, we selected 88 work orders for the repair of engines or aircraft accessories. As described in the Internal Controls section of this report, we audited FAA certification and surveillance controls to determine whether they provide reasonable assurance repair stations use approved parts, current manufacturers' maintenance manuals, authorized parts as recommended in manufacturers' maintenance manuals, and qualified supervisors, inspectors, and technicians. We found repair stations used: parts that lacked reasonable evidence of production origin, FAA approval status, or conformance with established U.S. or industry specifications; outdated manufacturers' maintenance manuals; parts not listed in the most current manufacturers' maintenance manuals; and parts subcontracted to repair stations not regulated by FAA.

Aircraft Part Deficiencies

During our visit to 4 domestic repair stations and 10 foreign repair stations, we found 213 (43 percent) of the 495 types of newly purchased parts we selected lacked reasonable evidence, as defined by the OIG, to verify either production origin, FAA production approval status, and/or conformance with industry or U.S. specifications. We found 95 percent (210 of 221) of the types of parts obtained from distributors or brokers lacked the necessary data, in our opinion, to determine positively that they met FAA approval requirements or met minimum industry or U.S. specifications. Our audit disclosed: (i) 202 types of parts (14,112 individual parts) acquired without positive evidence of production origin, FAA production approval status, or conformance with industry or U.S. specifications; (ii) 8 types of parts (50 individual parts) purchased from suppliers not approved by FAA to sell directly to end-users; (iii) 2 types of parts (60 individual parts) produced by manufacturers not approved by FAA to manufacture aircraft parts; and, (iv) 1 type of part (10 individual parts) which had been counterfeited.

Parts Purchased of Unknown Origin, Approval, or Conformance

For 202 of the 495 types of parts reviewed, we could not positively identify the production origin, FAA production approval status, or conformance with industry or U.S. specifications. We were unable to identify the production origin for these parts because the part documentation was either incomplete, vague or missing, or there were incomplete part markings or unmarked packaging. In our opinion, without these key data identification elements, it is not possible to positively determine the original production source of the parts. Therefore, we could not verify that these items were produced under an FAA-approved quality assurance system or conformed with industry or U.S. specifications. The following schedule is a summary of the parts traceability deficiencies we identified in the documentation provided by parts distributors or brokers.

Deficiency	Number of Deficiencies By Type Part	Total Deficiencies By Part
Production Origin Not Identified	159	9,996
Did Not Cite FARs	156	5,464
No Certification	16	1,646
No Part Number Identified	2	2

Compounding the identification problems noted above in the certifications provided by distributors or brokers, many of the parts and packages we physically inspected were not marked with the part number, production origin, or the FAA production approval status. The FARs do not require the marking of all aircraft parts. However, marking of all parts or packaging would facilitate the identification of approved parts. Some items we selected from work orders were not available for observation because they were already installed on aircraft or aircraft components. We did observe 32 different types of parts (1,619 parts) and identified the following deficiencies measured against our criteria:

Deficiency	Number of Deficiencies By Type Part	Total Deficiencies By Part
Production Origin Not Identified on Part or Packaging	25	1,535
No FAA Production Approval Marked	31	1,617
No Part Number on Part or Packaging	9	1,036

We observed that repair stations routinely accept and use parts regardless of incomplete and vague documentation. Some machine parts purchased to lower quality standards for other purposes may appear identical to aircraft quality parts. For example:

Bearing (Part Number 54322) - A domestic repair station purchased three bearings from a distributor without documentation or part markings conclusively identifying the manufacturing source for the bearings. The parts were received with an invoice dated December 28, 1990. One bearing was used on a work order for the overhaul of a constant speed drive (CSD) (part number 700842A) used on Boeing 707, 727, and 737 aircraft. FAA has issued a PMA on this CSD. The CSD takes the variable pitch or thrust of a jet engine and converts it to a constant output to run electrical components on the aircraft. Part number 54322 is a rotating ball bearing on the CSD governor's stem and sleeve unit, which is a rotating unit that controls speed. On the invoice was a generic certification from the distributor that stated "We certify that the parts listed above have been manufactured and inspected in accordance with applicable drawings and standards, and that these parts meet those drawings and standards requirements. Manufacturing and inspection documentation available upon request." The certification did not identify the bearing manufacturer or cite compliance with Federal regulations and no part certification document from the manufacturer was received with the part. The repair station used it without obtaining additional data. We physically observed like parts in the repair station's inventory purchased from the same vendor. We found the bearings' packaging was sealed. The packaging was marked with the part number and part name, quantity, purchase order number, and vendor. The packaging did not indicate the manufacturer.

Pin (Part Number 768128) - A foreign repair station purchased three pins from a U.S. distributor for the repair of a JT8D engine. These pins are used to attach the centerbody and fairings to the turbine exhaust case of the JT8D engine. The centerbody contains the bearing support for the low pressure turbine. The pins were received with a certification from the distributor that did not cite the FARs. No part documentation from the FAA PAH was received with the parts. Additionally, this part number has been confirmed by the JT8D PAH to have been counterfeited in the past. We learned this distributor has sold other counterfeit parts to this repair station. Our physical observations of the parts disclosed that the pins were repackaged by the repair station in a clear plastic bag with a repair station label including the part name and number. The part number and manufacturer's symbol were hand etched on the part.

Standard Parts - Three domestic repair stations purchased industry standard items. None of the repair stations could provide documentation evidencing that such parts conformed to established industry or U.S. specifications. FAR Part 21.303(b)(4) excludes standard parts items from specific FAA production approval.

However, this regulation only excludes those standard parts "conforming to established industry or U.S. specifications." In our opinion, without documentation evidencing the manufacturing origin of standard parts, compliance with the regulation cannot be conclusively established. We identified 20 standard types of parts used by these three repair stations. Absent documentation clearly establishing that the 20 items were manufactured in accordance with established industry or U.S. specification, there is no reasonable assurance these were conforming standard parts. (See Exhibit D.)

Suppliers Lacking FAA Approval to Sell Directly to End-users

Suppliers that produce and supply parts to PAHs are considered by the FAA to be operating under that PAH's approved quality assurance system. PAHs may grant authority to their suppliers to ship replacement and modification parts directly to end-users. In these instances, the PAH must authorize its suppliers in writing of any direct-shipment authority and establish procedures to ensure the shipped parts conform to the type design. Having given authority for direct shipment, the PAH assumes liability for the quality of the parts. FAA Order 8120.2A advises that each part directly shipped should be accompanied by a shipping ticket, invoice, or other document containing a declaration that the individual part was produced under the terms of the production approval. The shipping document should also identify the product on which the part is eligible for installation. If direct shipping authority has not been granted by a PAH, the supplier must have a separate production approval from the FAA, such as an FAA-PMA or Technical Standard Order Authorization (TSOA) to sell directly to users.

We found 8 type parts (50 individual parts) produced and sold directly to owners, operators, and repair stations by suppliers of PAHs for which the supplier lacked FAA production approval or direct shipment authority. Two types (6 individual parts) were purchased directly from the supplier and 6 types (44 individual parts) were purchased through distributors or brokers. For example:

Seal (Part Number S12095-213-5); Cap (Part Number S12604-113) and Piston (Part Number S30071-325) - A domestic repair station purchased five seals and one cap directly from a supplier. The repair station purchased five pistons from a distributor. The repair station used one seal, the cap, and one piston to repair a Boeing 757 aileron power control unit (component number

1527700-3). This component powers the aileron, which is a movable part of an airplane wing that provides lateral control. We contacted the supplier and determined it did not have either FAA production approval for the parts or direct shipment authorization.

Non-FAA Approved Manufacturers

We found 2 type parts (60 individual parts) produced by companies that did not have FAA production approval. Although the production origin was identified, we determined the companies did not hold FAA production approval for the items produced. Fifty of the parts were purchased directly from the non-PAHs and the remaining 10 were purchased from distributors or brokers. For the parts purchased from a distributor or broker, we identified the production origin by either the certifications, part markings, or packaging. For example:

Bearing (Part Number 205FF1116G-18) - A foreign repair station purchased in December 1991 50 bearings produced by a U.S. manufacturer. The repair station used one bearing to repair a generator (component number 28B141-51-A) for a Fokker F-27 U.S. registered aircraft. The generator produces electric power for the aircraft. The bearing allows the rotor to rotate in a fixed housing within the generator. The part certification supplied with the bearings was vague and certified the parts had been manufactured, tested, and inspected in accordance with the terms of the applicable contract/order and conformed fully to the standards/specifications quoted. We contacted the manufacturer of part 205FF1116G-18 and confirmed the manufacturer does not have FAA approval to manufacture this bearing for aeronautical use. The certification and the packaging also indicated the part was interchangeable with the generator's manufacturer part number 1110271-5. The illustrated parts catalog for the generator referenced the manufacturer's part number 1110271-5 as the required replacement bearing. However, a representative of the generator's manufacturer informed us that bearing 205FF1116G-18 was not an acceptable interchangeable part.

Counterfeit Parts

We found one type of part (10 parts) which had been counterfeited as defined in FAA AC 21-29A. Our review for known counterfeit Pratt and Whitney engine parts at one foreign repair station disclosed seven bushings, part number 768132B, that matched the profile of a counterfeit part as described in Pratt and Whitney's All

Representatives Notification Letter of October 29, 1991. Except for being in a small white box with Pratt and Whitney markings in blue ink, the subject parts were consistent with the characteristics of the counterfeit bushing described in the letter and the picture accompanying the letter. These bushings are used to attach the centerbody and fairings to the turbine exhaust case of the JT8D engine. The centerbody contains the bearing support for the low pressure turbine. The certification from the distributor stated "The undersigned hereby certifies that the material shipped against the above Purchase Order is in new condition; was originally manufactured by P&WA or one of their authorized manufacturers; that it was not obtained from any U.S. Governments Military source." The repair station purchased 10 bushings from the distributor. However, three bushings had been installed in JT8D engines. Two bushings had been installed in an engine that had already been returned to the customer. One bushing had been installed on an engine that was still in the overhaul shop.

When the OIG identified the counterfeit bushings, the repair station took prompt corrective action. The remaining seven counterfeit parts in inventory were quarantined. The repair station contacted the owner of the engine with the two counterfeit bushings installed. A work order was issued to remove the counterfeit part from the engine in the repair station shop.

This repair station was victimized twice on the same type counterfeit part. After receiving the Pratt and Whitney letter describing the counterfeit bushing, the repair station reviewed its inventory and discovered seven counterfeit bushings purchased in September 1991 from a west coast distributor. Subsequently, to replenish its stock, the repair station purchased 10 bushings from an east coast distributor. However, as described in the above paragraphs theae bushings, although packaged differently, were also counterfeit.

Use of Outdated Manufacturers' Maintenance Manuals

Five repair stations that performed repairs for U.S. registered aircraft used outdated manufacturers' maintenance manuals. We found that 11 of the 73 manufacturers' maintenance manuals audited were not the most current revision. Of these 11 outdated manuals, 5 were in use at domestic repair stations and 6 were in use at foreign repair stations. We detected 7 of the 11 outdated manuals based on our audit of selected work orders and the remaining 4 were detected based on an expanded audit of manuals at one repair station. We determined that repair stations used the outdated manuals to perform at least 47 repairs as shown in the following table:

Component Number	Component Name	No. of Repairs Performed
R1631M1	Actuator	1
3180131-2	Accumulator	14
F61C0058M-1	Shutoff Valve Assembly	7
915F212-4	Generator Control Unit	3
711002-5	Panel	14
	Subtotal Domestic	39
AC61552	Air Compressor	2
PS823	Power Supply	1
BA02801-1	AC Generator	1
2587335-21	Vertical Gyro	2
2CM9ABY7	Tachometer Generator	1
383152-16-1	Starter	1
	Subtotal Foreign	8
	TOTAL	47

FAR Part 43 requires each person performing aircraft maintenance and repair to use the methods, techniques, and practices prescribed in the manufacturer's current maintenance manual or other procedures acceptable to the FAA Administrator. Manufacturers' maintenance manuals are issued for each aircraft, aircraft engine, propeller, and appliance with an approved repair process. Revisions to manufacturers' maintenance manuals are critical to the proper repair of aircraft, aircraft engines, propellers, or appliances because of modifications to repair procedures and techniques caused by engineering changes based on experience, service bulletins, or airworthiness directives and technological improvements.

We expanded our audit of manuals at one south Florida repair station because FAA inspectors had reported the use of outdated manuals as a result of a surveillance inspection. In a letter dated February 26, 1992 to the repair station, the FAA inspector reported discrepancies found during a facility inspection conducted on February 20 and 21, 1992. One of these discrepancies was "numerous manufacturer's manuals were not current." At the close of the letter, the FAA inspector requested the repair station provide, within 10 working days after receipt, a response concerning the corrective action taken for each discrepancy. A letter dated March 16, 1992 was sent from the repair station to the FAA stating "Overhaul Manuals are being verified and updated on attrition basis as a manual is required. No unit will be released for service without a current manual." FAA agreed this corrective action was satisfactory. This is the only example we found during our audit of the FAA detecting outdated repair manuals.

We discussed with the FSDO manager and the responsible FAA inspectors the actions taken as a result of finding these outdated manuals. They told us they did not analyze the manual changes to determine the safety impact and did not determine the quantity and type of repairs performed using these manuals. The FAA inspectors told us they relied on the repair station's claim that the old manuals were not used to repair parts and would not be used in the future. The FAA inspectors also stated they did not have time to research the matter further. Although the repair station claimed to have not used the old manuals, we found examples of outdated manuals used to repair parts. For example:

Actuator (Part Number R1631M1) - Analysis of the chief inspector's warranty return logbook at this domestic repair station disclosed the repair station used a maintenance manual that was 7 years outdated to repair a Boeing 727 actuator returned to the repair station for warranty work. One actuator is on each aircraft and is used to adjust the horizontal stabilizer trim operated from the cockpit. On the basis of the warranty return analysis, the chief inspector concluded the repair station's copy of the manual did not contain the latest service bulletin issued by the manufacturer. The chief inspector found the manufacturer issued the service bulletin to upgrade the shaft because after 4,000 to 5,000 hours of usage the previous shafts would fail. We also determined the repair station overhauled one additional actuator with the same part number during a 2-year time period ending June 9, 1992.

As shown by the above example, surveillance inspections and the resulting follow-up action taken are not always detailed enough to detect potential FAR violations. Additionally, inspections are subjective in nature and FAR violations do not always result in formal enforcement action. Our audit disclosed that FAA inspectors seldom initiate an Enforcement Investigative Report (EIR) and prefer to handle the violations through informal administrative action as discussed in this repair station example.

Use of Parts Not Listed in Current Maintenance Manuals

Repair stations had performed 17 of the 88 repairs audited using 27 different types of parts (61 individual parts) not listed in the manufacturers' most current maintenance manuals. Four domestic repair stations and four foreign repair stations made these part substitutions. We contacted the component manufacturers about each of these substitutions and determined the manufacturers did not authorize their use (see Exhibit E). For example:

O'ring (Part Number NAS1611-022) - A domestic repair station used this o'ring as a substitute for part number 2-022B278-7 specified in the manufacturer's maintenance manual for the repair of a tail skid actuator (component part number R1549-1). The tail skid actuator is used on Boeing 727 aircraft to drive the mechanical linkage that extends and retracts the tail skid. It is used during takeoffs and landings to keep the plane at the proper angle. The o'ring is used for sealing hydraulic fluids. The actuator manufacturer's chief mechanical engineer confirmed that the substitute part was not equivalent to the authorized o'ring. The o'ring specified in the manual is made of butyl and the o'ring used in the repair was made of ethylene propylene. According to the manufacturer's engineer, the ethylene propylene can swell and deteriorate in the presence of some fluids and is not as compatible with fluids normally used on aircraft. The manufacturer's engineer stated the o'ring is not identical to the one called for in the maintenance manual; therefore, it should not be allowed unless there is specific approval given by the design authority. In order to verify these conclusions, we also contacted the actual supplier of the o'ring. The o'ring supplier agreed with the response obtained from the component manufacturer.

Bearing (Part Number SR156WX1K25V0-11) - A foreign repair station used this bearing as a substitute for part number SR156SWX31K25V0-11 specified in the manufacturer's maintenance manual for the repair of a vertical gyro (component part number 2587335-21). This gyro can be installed in various aircraft such as the DC-8, DC-9, Boeing 727, and Boeing 737. Two gyros are usually on each aircraft and they provide roll and pitch information to both cockpit displays and the autopilot. The bearing in this gyro is used in conjunction with a pendulum to assure the gyro will begin with an approximately correct vertical orientation when power is applied. The vertical gyro's manufacturer confirmed the bearing used was not equivalent to the bearing specified in the manual. The manufacturer implemented a design change in 1976 because bearings removed after extended service were showing a type of wear called "false brinelling." Further examination revealed a residue of aluminum oxide resulting from the standard finish used in the previous bearing's final polishing. The manufacturer's maintenance manual now recommends the use of the bearing with part number SR156SWX31K25V0-11, which has a diamond lap polishing.

Use of Repair Stations Not Regulated by FAA

The repair stations included in our audit subcontracted 61 of the 587 type parts replaced on work orders to other repair stations. Of these 61 parts repaired by subcontractors, we found 16 types of parts (19 individual parts) were subcontracted for repair, overhaul, modification, testing, and inspection to repair stations not certified by the FAA to accomplish the repair (see Exhibit F). FAR 145.47 requires a repair station to have the equipment and materials necessary to efficiently perform the functions appropriate to the ratings it maintains unless the function is authorized to be subcontracted as detailed in FAR 145, Appendix A. If the function is authorized and the contracted repair station is not FAA certified, the repair station shall determine the airworthiness of the article involved.

To determine whether the functions subcontracted to repair stations not regulated by FAA were authorized, we analyzed the description of work performed and FAR 145 Appendix A. However, the descriptions of work performed and the regulations were not specific or clear enough to make a determination. We also found various FAA aviation safety inspectors interpreted the regulations differently. Therefore, we are reporting all repairs we found subcontracted to repair stations not regulated by FAA, so responsible FAA Headquarters officials can make the necessary compliance and safety determinations.

Internal Control Weaknesses Identified and Improvements Needed

To summarize, we identified the following weaknesses in the FAA internal control system for monitoring compliance with FAR Part 43 maintenance regulations:

- Repair parts used without positive evidence of production origin, FAA approval status, or conformance with industry or U.S. specifications;

- Outdated manufacturers' maintenance manuals used to perform repairs;

- Repair parts used that were not listed in the most recent manufacturers' maintenance manuals; and

- Parts subcontracted for repair to repair stations not regulated by FAA.

Improvements are needed in the following areas to improve the quality of the FAA internal control system for monitoring compliance with FAR Part 43 maintenance regulations:

- Regulations and technical guidance for aircraft parts approval, part substitutions, and subcontracted repairs;

- FAA surveillance program for inspection requirements and quality of surveillance;

- Regulation and surveillance of aircraft parts distributors or brokers; and

- Availability of information.

Enhanced Regulations and Technical Guidance Needed

FAA needs to enhance its regulations to more effectively equip the aircraft repair industry to detect unapproved parts (including non-conforming standard parts) and to ensure repairs are properly performed. Clear and consistently interpretable regulations and technical guidance are needed to identify FAA approval status, production origin, and the intended use of aircraft parts. Better regulations are needed requiring standard part documentation and markings for parts and packaging consistent with the marking requirements for PMAs. FAA should clearly define what parts are included in the term "standard parts." There is a significant amount of confusion over what parts this term encompasses both within the aircraft industry and the FAA. Additionally, better regulations and technical guidance are needed for part substitutions and the subcontracting of repairs.

Aircraft Parts Approval

The FAA has defined both approved and unapproved parts. In AC 20-62C, the FAA places final responsibility for establishing the approval status of a part on the end-user and provides five acceptable methods for identifying approved parts. However, the FAA has not issued the necessary regulations whereby all of the required data needed to identify an approved part would be made available to the end-user. Regulations are needed requiring the uniform marking of all parts comparable to the marking requirements for PMA parts. The systematic marking of parts would aid the end-user in establishing a portion of the data needed to determine the approval status of a part. To further empower end-users, regulations are also needed to require all sellers of aircraft parts to provide to the purchaser certified documentation clearly identifying production origin and citing the production approval status for the part produced; thus, acknowledging that the part is intended to be used on an aircraft. By providing the purchaser with such unambiguous factual data, the end-user will be able to verify the accuracy of the data with the manufacturer and the FAA can better assess responsibility for marketing unapproved parts for aircraft use.

Part Substitutions

We found inconsistent interpretation of the regulations concerning part substitutions among FAA aviation inspectors, repair stations, and manufacturers. As discussed previously in the report, we found repair stations that had substituted parts for those listed in manufacturers' maintenance manuals claiming they were equivalent. However, through our contacts with the manufacturers, we found parts used that were not authorized and/or not equivalent. We found a general consensus among manufacturers that repair stations should not use substitute parts unless approved and tested by the manufacturer. The following two quotations from manufacturers demonstrate this interpretation of the regulations:

> "The basic question should not be whether or not they used an acceptable seal but that they used a seal that is not identical to what has been specified. This should not be allowed unless there is specific approval given by the design authority."

> "...very similar parts but are not officially listed as interchangeable. If you are asking for interchangeability it

> will be necessary to instigate a design change. For this to begin you will have to inform us in writing of your request."

In addition, one FSDO in FAA's Southern Region had a similar interpretation as shown in a letter sent to all of its repair stations on February 21, 1991:

> "The only authorized parts which may be used for the repair of an aircraft component are those listed in the currently revised component manufacturer's illustrated parts catalog. Failure to comply with manufacturer's overhaul instructions for a particular unit could be contrary to Federal Aviation Regulations."

FAA Headquarters personnel told us approval requirements depended on whether the repair or alteration was major or minor. However, FAA officials told us there has always been a debate within the FAA on what constitutes a major or minor repair or alteration. FAA's definition of a major repair or alteration is one that might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or that is not done according to accepted practices; or cannot be done by elementary operations. The definition of a minor repair or alteration is one that is not major.

The FARs and FAA technical guidance appear to imply that all part substitutions not recommended by the manufacturer should not be allowed. FAR 145.51 requires certificated repair stations to perform major repairs or alterations in accordance with technical data approved by the FAA Administrator. FAR Part 43, Appendix A provides examples of major repairs and alterations. Appendix A states that a major appliance alteration is one that alters the basic design and is not made in accordance with recommendations of the appliance manufacturer or in accordance with an FAA airworthiness directive. Additionally, an example of a major powerplant alteration is the installation of structural parts other than the type of parts approved for installation. Guidance to inspectors provided in FAA Order 8300.10 states that engineering assistance and advice should be requested when working in areas that include the substitution of parts.

FAA regulations should be changed to clearly address the issue of part substitutions. FAA should provide regulations and technical guidance explaining which part substitutions, if any, it allows and what type of prior approval repair stations must obtain. We concluded from our audit of the FARs and discussions with manufacturers and FAA inspectors that the use of part substitutions without prior engineering approval by authorized officials could constitute a violation of the FARs, depending on whether the repair was major or minor. We concluded regulations should be enhanced because differing opinions exist on what constitutes a major or minor repair and whether any part substitutions not authorized by the manufacturer are allowed. The regulations should require repair stations to have authorized officials (e.g., manufacturers' representatives, FAA inspectors, or Designated Engineering Representatives) evaluate the safety impact of all part substitutions prior to their installation and document the justification for using alternate parts.

Subcontracted Repairs

As discussed previously in the report, we found repair stations had subcontracted parts for repair to companies FAA had not approved. According to FAR 145, Appendix A there are certain work functions repair stations can subcontract to other repair stations FAA has not approved. However, through discussions with FSDO, IFO, and Headquarters officials, we found there are different interpretations of these regulations. Therefore, FAA should provide clear regulations and technical guidance to aviation safety inspectors and repair stations on which work functions subcontracted to repair stations not regulated by the FAA are allowed.

Improvements Needed in FAA Surveillance Program

We concluded the FAA needs to improve the quality of its surveillance program by revising inspection requirements and by improving the quality of surveillance inspections. Specifically, the FAA should (i) prioritize its requirements for the number and content of repair station inspections through risk assessment considering repair station size, significance of repairs, levels of activity, and/or types of recurring problems found and (ii) require a more in-depth surveillance inspection that is well documented and covers the testing of components and products repaired by repair stations, including routine surveillance of the traceability of aircraft parts used by repair stations.

Inspection Requirements

FAA's guidelines require aviation safety inspectors to conduct one facility inspection annually for each domestic and foreign repair station regardless of size, type, and significance of repairs; levels of activity; or types of recurring violations. We found, however, that these characteristics vary significantly among repair stations. The table below shows the number of employees, annual sales, and ratings for three repair stations in FAA's North Florida FSDO. According to FAA's PTRS, the FAA inspected each of these repair stations once during FY 1991.

Number of Employees	Annual Sales	Ratings
*200	*$4,000,000	Radio-Classes 1,2,3; Instrument Classes 1,2,3,4; Limited Specialized Service
*42	*$2,000,000	Limited Airframe; Limited Powerplant
*6	*$250,000	Radio Classes 1,2; Limited Radio; Limited Specialized Service; Limited Instrument

*These figures are according to the World Aviation Directory, Summer 1991 edition.

FAA NPG inspection requirements do not target major or sensitive stations for higher levels of FAA surveillance because FAA does not maintain the management data necessary to perform a viable risk assessment. Considering the aviation repair industry is large and diverse, accurate and detailed information is necessary to design and implement a cost-effective inspection program. The data concerning repair stations maintained in FAA's Vital Information System (VIS) is not accurate, reflects little about the type work repair stations actually perform, and does not include volume of repairs performed. Our audit of two FSDOs in FAA's Southern Region found 22 percent of repair stations had incorrect or no ratings assigned in the VIS. In addition, the VIS does not track specific makes and models of components and aircraft repaired by repair stations even though the majority (61 percent) of the ratings for FAA's Southern Region repair stations are "limited" (the repair station's scope of allowed repairs is limited to a specific make and model of aircraft, engine, or part). To determine specifically what aircraft, engine, or part each repair station is qualified to work on requires a time-consuming task of reviewing each repair station's certificate. The current certificates are not easily attainable because they are not maintained at a central location. The current certificates are maintained at each of the 89 FSDO locations. To determine the volume of repairs requires contacting each of the 4,400 domestic repair stations. Although volume data are available in the World Aviation Directory, the data are self-reported and not independently verified.

Quality of Surveillance

FAA surveillance inspections could also be improved by directing inspection efforts toward final performance or repair station results. Currently, FAA's surveillance techniques are not results oriented, but are based on a review of processes. If repair stations have established "adequate" processes to accomplish repairs, then FAA concludes the repair station is doing a satisfactory job. FAA has not developed performance measures to evaluate the success of a repair station's operations (e.g., acceptable failure rates or acceptable number of warranty returns) nor does it analyze failure rate trends or number of warranty returns. Also, although one of the more effective quality management techniques is product testing, FAA does not independently test, or have tested, repair stations' repaired components or products. Work product testing is not required by either FAR or FAA administrative requirements.

FAA should also improve its surveillance inspections to ensure repair stations consistently comply with the aircraft repair requirements of the FARs. The approach to each inspection is subjective in nature and is left to the discretion of each individual FAA inspector. Although the surveillance inspection is subjective in nature, we did identify common weaknesses in the process among the different FSDOs and inspectors:

Advance Notice. Inspectors typically provide repair stations advance notice of facility inspections instead of performing unannounced inspections.

Limited Time. We determined FAA inspectors spend only a limited amount of time at each repair station. For example, an inspector's time is not spent performing detailed tests of parts used in performing repairs or the sources of those parts. Based on our visits and discussions with FAA inspectors, a typical review of inventory by FAA inspectors would include ensuring serviceable parts are segregated from unserviceable parts, parts are properly safeguarded, and incoming parts are subjected to an inspection system. Typically, incoming inspection was only to verify part numbers, check paperwork, and ensure parts were free from visual defects.

Documentation. FAA inspectors do not routinely document items inspected at repair stations or follow-up actions taken. Inspectors use a checklist when performing repair station inspections. A narrative explanation of tests performed is not required, and inspectors are not required to maintain the checklists. If no discrepancies are found, there is no documentation maintained for a repair station facility inspection. When discrepancies are found, the FAA notifies the repair station in writing. These discrepancies are resolved either through a letter to FAA or a telephone call, and FAA verifies this information during a follow-up inspection.

Analysis of Discrepancies. Cumulative repair station discrepancies identified during inspections are maintained in the PTRS data base. However, as disclosed in OIG Report No. R6-FA-2-084 and GAO Report RCED-92-14 (see pages 8 and 9), data reliability problems exist in the PTRS. FAA has begun to address the data reliability problems disclosed in these two reports.

As discussed previously in this report, repair stations did not always use the most current maintenance manuals when repairing defective parts. Although the FARs require repair stations to use current manufacturers' maintenance manuals, for smaller low volume repair stations, it is not generally cost beneficial to obtain and keep current maintenance manuals for parts where the expected quantity submitted for repair is unknown. Compounding the cost factor are manufacturers that purposely control the distribution of their manuals to manufacturer-approved repair stations. Although smaller low volume repair stations should ideally decline to perform repairs without the required maintenance manuals, some may be willing to chance detection by FAA and perform repairs without the required manuals. To dissuade repair stations from taking such risks at the ultimate expense of the aviation industry, FAA should include testing of the currency of maintenance manuals in all surveillance inspections and aggressively enforce the requirements of the FARs. Therefore, because this is an area of risk, it is imperative that each surveillance inspection include detailed testing of the currency of manufacturers' maintenance manuals. Whenever inspectors find such violations, they should perform a thorough review to evaluate the scope and volume of the noncompliance.

Because FAA does not always issue EIRs and manufacturers' maintenance manuals can be cost prohibitive to obtain and keep current for smaller repair stations, there is no effective incentive for a repair station to keep current maintenance manuals. FAA should review more closely the method by which repair stations verify the current revision dates and obtain current maintenance manuals. Also, when FAA inspectors do find outdated manuals, they should follow up to determine if the repair station used the outdated manuals to make repairs. If so, the inspector should evaluate the manual changes to determine if there would be a safety impact on the components repaired. If the inspector identifies a safety impact, the repaired parts should be reported through FAA's suspected unapproved parts notification process to ensure all parts repaired using outdated manuals can be purged from the aviation industry. Additionally, FAA inspectors should take a more aggressive approach to FAR violations by imposing the sanctions provided in FAA Order 2150.3A, "Compliance and Enforcement Program" (i.e., civil penalties, certificate suspension or revocation, or criminal action) against noncomplying repair stations.

To improve the quality of surveillance, FAA should (i) establish standard performance measures that represent the success or failure of a repair station's operations; (ii) require aviation safety inspectors to test or have independently tested components and products repaired by repair stations to evaluate the adequacy of work performed; (iii) develop a more statistically based approach to the surveillance process such as standard requirements for aviation safety inspectors to review a certain number of work orders, manufacturers' maintenance manuals, and parts used in repair; (iv) require aviation safety inspectors to document specifically the tests performed during each surveillance inspection and the safety implications for any deficiencies found; and (v) develop standard procedures for follow-up actions to be taken by inspectors when they find violations of the FARs including standard documentation requirements.

Regulation and Surveillance of Parts Distributors or Brokers

FAA should regulate and require periodic surveillance of aircraft parts distributors or brokers. Our audit revealed that 95 percent of parts purchased from distributors or brokers did not have reasonable evidence of either FAA production approval status, production origin, or conformance with established U.S. or industry specifications. Although this segment of the aircraft industry operates without regulation or independent surveillance, the regulated end-user that acquires parts from distributors or brokers relies on these sources to provide approved and conforming parts. Without regulation and independent surveillance of parts distributors or brokers, the use of parts from these sources exposes the end-user to unknown and unwarranted risks.

Information Changes

Better access is needed to FAA data to allow the aviation industry to determine the approval status of a part, appliance, or repair station. To ease the identification of approved parts, the FAA needs to provide the aviation industry data on how to access the FAA's data on PAHs, suppliers with authority to ship parts directly to users, and certificated repair stations along with the parts and appliances each has been authorized to produce and/or repair. FAA field personnel we contacted during the course of our audits were usually unsure about where to locate the parts approval data we requested. As a result, in the absence of clear approval data from the FAA, we requested FAA approval status directly from the manufacturers, suppliers, and repair stations. For example, on an aileron power control unit for a Boeing 757, we contacted two different FAA field units and were unsuccessful in determining the PAH status of the unit. To obtain the PAH status of this unit, we contacted the manufacturer. This is a very time consuming process, unlikely to be routinely employed by repair stations. Subsequently, we were informed of the proper FAA office to supply such data. However, the FAA should inform the aviation industry on how to quickly obtain such data and provide easy access to such data to encourage users to establish the approval status of aircraft parts and appliances.

Improvements in the type information maintained for repair stations such as better defined ratings, activity levels, and also the identification of recurring violations would aid FAA in directing its resources toward significant or high-risk repair stations. FAA should redefine the repair station airworthiness ratings to more clearly identify what specific aircraft, engine, or parts each repair station is qualified to work on. Also, to determine repair volume, FAA should require domestic repair stations to report activity levels similar to the requirement for foreign repair stations and maintain a data base of this information for both domestic and foreign repair stations. Currently, FAA requires foreign repair stations to report activity level at each recertification (usually every 2 years). In addition, FAA should analyze inspection results to identify recurring violations in order to identify high-risk areas. FAA could then develop in-house training courses for aviation safety inspectors concerning areas most at risk and the most efficient and effective inspection techniques to use to resolve these problem areas. FAA has begun the development of a statistically based management feedback system using results from prior inspections and investigations.

Reliance on Repair Stations

To comply with FAR Part 21, Subpart H, Airworthiness Certificates aircraft owners and operators rely on parts and components repaired by FAA regulated repair stations to be in compliance with applicable FARs. These end-users of repair station work products rely on the maintenance release accompanying repaired products as assurance all repairs were made in accordance with FAR Part 43. We realize the ultimate responsibility for airworthiness certificate compliance belongs to aircraft owners and operators. However, it is unrealistic for aircraft owners and operators to tear down and inspect repaired components such as a CSD or a generator to ensure the maintenance and the replacement parts used met the requirements of FAR Part 43. Also, once a repaired component is torn down by a third party, the problem of establishing clear liability exists. Therefore, to provide aircraft owners and operators reasonable assurance that FAA regulated repair stations comply with FAR Part 43 maintenance requirements, FAA regulations and its surveillance process should be improved.

FAA Initiatives Taken and Planned

The FAA Associate Administrator for Regulation and Certification stated that the preponderance of parts currently on the shelves of owner/operators, repair stations, and distributors or brokers fall into the category of being "technically unapproved." He cautioned that most of these parts were airworthy but lacked documentation to conclusively demonstrate they were produced in accordance with applicable FARs. FAA does not have sufficient numbers of inspectors to increase parts oversight to the level necessary to significantly increase assurance that all parts meet applicable criteria. However, in response to the OIG focus on aviation parts and the concerns of the aviation industry, FAA has taken and planned several actions to detect suspected unapproved parts. FAA's primary focus has been to educate the aviation industry and FAA inspectors in how to identify approved/unapproved parts. In 1992, FAA began its Approved Part Seminars and has scheduled seminars through 1994. In FAA Order 8000.74, "FAA Approved Parts Seminars," issued in September 1992, FAA formally published the dates and locations of the planned seminars. The distribution of the order included all segments of the aviation industry. In March 1993, FAA issued a ten page color brochure entitled "Detecting and Reporting Suspected Unapproved Parts" and distributed it to the aviation industry. Additional educational material developed included a 20-minute video tape to familiarize the aviation public with FAA regulations, policies, and procedures related to approved/unapproved parts. As of October 1993, the video tape was available for distribution.

The FAA has established a SUP program and an organizational structure to provide guidance for identifying, reporting, and investigating suspected unapproved parts. A national central reporting location has been established to coordinate the resolution of all SUP reports and a field structure of FAA safety inspectors has been implemented to respond to SUP reports. In AC 21-29A, the FAA provides information and guidance for detecting and reporting suspected unapproved aircraft parts. Form 8120-11 was developed to facilitate and record the reporting of suspected unapproved parts. The national aviation safety hotline telephone number has been included in the SUP brochure and is widely publicized on a SUP sticker released in March 1993. All SUP reports including hotline reports are forwarded to a central location for evaluation by aeronautical engineers. As of September 27, 1993, the FAA had received 656 SUP reports including 79 received on the telephone hotline.

SUP reports are initially evaluated for safety implications and classified into one of six categories depending on the effect on safety. As defined in FAA Order 8120.10, "Suspected Unapproved Part Program" issued on September 28, 1993, a category one SUP report could have a direct adverse effect on safety ". . ., i.e., the functional failure or resulting secondary damage by itself, will have serious or possibly catastrophic consequences, and might cause the loss of the aircraft, injury to the occupants, or cause risks to other aircraft, persons, or property on the ground." A category two SUP is defined as "The unapproved part could have a direct adverse effect on operating capability, i.e., require the flight crew to use abnormal or emergency procedures." A category three SUP is defined as "The unapproved part and one additional failure of a backup part or function could have an adverse effect on safety or operating capability." A category four SUP is defined as "The failure of the unapproved part is not likely to adversely effect safety or operating capability." A category five SUP is defined as "Not a SUP issue." A category six SUP is defined as "After a preliminary investigation, the action office was unable to substantiate the reported SUP notification." FAA requires category one SUP reports to be investigated within 5 working days.

During a meeting with the FAA Associate Administrator for Regulation and Certification, he estimated that there are in excess of 20,000 suppliers producing and directly shipping hundreds of thousands of parts without approval or authority. In that discussion, the Associate Administrator estimated there were millions, if not billions of dollars of such parts on the shelves of operators, distributors or brokers, and repair stations. A recall of all such unapproved or unauthorized parts would be financially catastrophic for the entire aviation industry.

To address the problem of aircraft parts manufactured by suppliers and sub-tier suppliers without FAA approval, the FAA has initiated a three-phase plan. A Parts Approval Action Team was formed to accomplish each phase. Phase I of the program consisted of expediting PMA applications by providing approval guidance based on "showing evidence of a licensing agreement" or equivalent. The FAA issued Draft Notice 8110.45A "PMA Under Evidence of Licensing Agreement" in February 1993. Phase II addresses those suppliers unable to "show evidence of licensing agreement" but who may qualify under "identicality." A draft notice has been developed with projected dissemination at the end of November 1993. Phase III consists of developing policy and procedures to ascertain and document the airworthiness of replacement and modification parts that are in service, in an operator's inventory, or in stock at a distributor or broker. To accomplish Phase III, the FAA formed a Parts Disposition Action Team to develop procedures for determining airworthiness of non-critical and critical parts presently in the system that have no traceability. This team met in February 1993 to draft guidance for determining the airworthiness of such parts.

FAA has recognized the need to redirect and more effectively use its limited inspection resources. In the "FY 1993 Management Plan" for FAA's Flight Standards Service, FAA identifies specific objectives to redirect safety resources based on statistically supported results from prior inspections and investigations.

FAA has issued draft AC 20-62D which contains supplemental guidance for use in the determination of the eligibility and traceability of aeronautical parts and materials for installation on aircraft. This draft circular contains specific standard documentation guidance for sellers of aircraft parts that should provide adequate traceability to determine the airworthiness and eligibility of aircraft parts. The FAA plans to publish AC 20-62D in the Federal Register in December 1993.

The need to clarify regulatory rules pertaining to PAHs and for improved part markings has been addressed in a Notice of Proposed Rule Making (NPRM) currently under development. FAA plans to consolidate and clarify the definition of a PAH and require part markings on all parts and subcomponents intended for installation on aircraft beginning 6 months after the effective date of the regulatory revision. FAA initially planned to publish the NPRM in March or April 1993 in the Federal Register with further plans to issue the revised regulations by the end of FY 1993. However, as of September 1993, no new developments regarding the NPRM had occurred.

Reportability of Material Internal Control Weakness

DOT Order 5100.4A established policies and standards for each operating administration to comply with the requirements of the FMFIA and OMB Circular A-123 (Revised) "Internal Control Systems." These policies and standards are to be followed in evaluating, improving, and reporting on internal controls in accounting, administration, and program activities. According to the DOT order, internal control weaknesses should be reported to the Secretary for inclusion in the annual report to the President and Congress, as required by the FMFIA, when the weakness has or could adversely affect the Department or the public. We concluded FAA's internal control system, regulations, technical guidance, and surveillance activities cannot be relied upon to provide reasonable assurance that repair stations use: (i) FAA approved parts or parts that conform to established U.S. or industry specifications, (ii) current manufacturers' maintenance manuals, (iii) parts specified in manufacturers' maintenance manuals, and (iv) subcontractors who are authorized repair stations. The absence of a high level of assurance that repair stations are accomplishing aircraft maintenance and repair using approved or conforming parts and in compliance with the FARs demonstrates a weakness in the effectiveness of controls established by FAA. This weakness is material and warrants reporting in accordance with the Departmental criteria cited above.

To determine why the internal control weaknesses discussed in this finding were not disclosed and corrected during the most recent internal control risk assessment process, we evaluated the applicable risk assessment forms. We found each applicable assessable unit had been reviewed and assessed by FAA as a low risk; no supplemental testing was performed.

Recommendations

We recommend the FAA Administrator:

1. Continue plans to revise AC 20-62D and ensure the revision is published as planned and includes standard certification requirements for the aviation industry to use that clearly identifies the part number, manufacturing source, and compliance with the FARs for all replacement parts used to repair aircraft or aircraft components.

2. Continue plans to revise and reissue FAR Part 21 and ensure the revised regulations require the legible marking of replacement parts produced by all PAHs comparable to the marking requirements required for PMA manufactured parts and require all PAHs to provide evidence of FAA production approval and certification of compliance with the FARs.

3. Revise FAR Part 43 and provide technical guidance to clearly define acceptable part substitutions and allowable types of subcontracted repairs.

    a. Require repair stations to have authorized officials evaluate the safety impact of all part substitutions prior to installation and document the justification for using alternate parts.

    b. Clarify which repair functions are allowed to be subcontracted to repair stations not approved by the FAA.

4. Continue the development of a statistically based management feedback system. Ensure the system includes development of information on the volume, type, technical sophistication, safety sensitivity, or criticality of repairs made by each repair station and the extent and significance of problems found at repair stations in order to target major or risk sensitive stations for in-depth FAA surveillance. Specifically,

    a. Require domestic repair stations to report activity level each year similar to the requirement for foreign repair stations.

    b. Redefine repair station ratings to more clearly identify what type repairs each repair station is approved to perform.

    c. Identify recurring problems and high risk areas by analyzing inspection results.

    d. Develop in-house training courses for aviation safety inspectors concerning areas most at risk and the most efficient and effective inspection techniques to use.

5. Develop standard performance measures that represent the success or failure of a repair station's operation.

6. Require independent testing, on a statistical basis, of components and products repaired by repair stations to evaluate the adequacy of work performed.

7. Develop a statistical approach to the surveillance process such as standard requirements for aviation safety inspectors to review a certain number of work orders, manufacturers' maintenance manuals, and the traceability of parts used in repair.

8. Require aviation safety inspectors to document tests performed during each surveillance inspection and the safety implications of any deficiencies found.

9. Develop standard procedures to ensure inspectors take appropriate follow-up actions when they find FAR violations and require standard documentation including the preparation of a SUP notification for safety-impacted parts repaired using

outdated manuals, incorrect part substitutions, or unauthorized repair stations.

10. Expand regulatory authority to require FAA surveillance of aircraft parts distributors or brokers and to require distributors or brokers maintain documentation for the traceability of all parts sold or traded and provide to purchasers documentation supporting the FAA approval status and the manufacturing origin of all such aircraft parts.

11. Provide guidance to the aircraft repair industry on the PAH and repair station data available from FAA including instruction on how to access current data on PAHs, drop-ship authorization holders, and repair station authorizations for all aircraft parts.

12. Report the material internal control weaknesses disclosed in this report to the Secretary for inclusion in the Secretary's annual report to the President and Congress as required by the FMFIA.

Management Response

In a February 17, 1994 response to our December 17, 1993 draft report, FAA concurred with six recommendations, partially concurred with three recommendations and nonconcurred with seven recommendations. FAA's response to each recommendation is summarized in the following paragraphs.

Recommendations 1, 2, 3.a, 3.b, 10, and 11 were designed to provide better assurance that replacement aircraft parts are FAA-approved. FAA concurred with Recommendation 1 and stated it is revising AC 20-62D regarding part documentation and plans to issue it in FY 1995. FAA concurred with Recommendation 3.b and stated it is revising guidance and regulations to clarify contracting out repair functions. FAA plans to issue revised FAA Order 8610.3 in FY 1994 and revised FAR Part 145 in FY 1995. FAA partially agreed with Recommendation 2 and stated it will consider the recommendation, but cannot make a commitment because it is subject to the Aviation Regulatory Advisory Committee (ARAC) rulemaking process. Responding to Recommendation 10, FAA did not agree to regulate distributors and brokers, but stated it is developing an alternative approach using the concept of voluntary accreditation by FAA-sanctioned third parties. FAA agreed in part with Recommendation 11 to track data regarding FAA approval status. FAA suggested a comprehensive data base be developed by commercial sources and has asked industry to chair an industry-wide task team to determine the appropriate course of action. FAA did not agree with Recommendation 3.b to clarify parts substitution regulations stating regulations already cover the methods by which parts substitution can take place. However, FAA said additional guidance will be provided in AC 20-62D.

Recommendations 4.a, 4.b, 4.c, and 4.d were designed to provide better targeting of repair stations for FAA surveillance. FAA agreed with Recommendation 4.b and stated it would redefine repair station ratings. The response stated FAA had proposed revisions to FAR Part 145 to clarify the repairs each repair station is approved to conduct, increase the number of class ratings from 9 to 29 and reduce the number of limited ratings from 13 to 9. FAA plans to issue revisions to FAR Part 145 in FY 1995. FAA agreed with Recommendation 4.c and replied that an analytical tool known as the Safety Performance Analysis Subsystem (SPAS) is currently being prototyped in nine FAA regions. The SPAS is designed to take information from existing data bases and sets warning levels to alert inspectors of pending safety trends. FAA agreed to Recommendation 4.d and stated it would increase the level of inspector training. FAA also replied its academy is developing a new 64-hour training course which is expected to be completed by FY 1995. FAA did not agree with Recommendation 4.a. The response stated it would necessitate a major change in FAA policy to require domestic repair stations to submit activity levels and such a change would not be desirable because of the additional burden on FAA resources and safety would not be enhanced.

Recommendations 5, 6, 7, 8, and 9 were designed to improve FAA surveillance of repair stations. FAA agreed with Recommendation 8 and stated the level of detail recorded during surveillance inspections has recently been increased and presently meets FAA's programmatic needs. FAA did not agree with Recommendations 5, 6, 7, and 9 declining to establish performance standards, to have parts independently tested, to develop a statistical approach to surveillance, or to develop standard follow-up procedures when violations are found. The response stated that FAA considers its inspection program to be an effective and efficient means of assuring compliance with the FARs. The response also stated repair stations already must maintain a minimum standard as outlined in FAR Parts 43 and 145 and FAA Order 8300.10. FAA concluded independent testing will require a change to the existing regulations and policies and will impact resources. The response also stated inadequacies in work performed are currently being detected by a central data base that tracks malfunction and defect and mechanical reliability reports. FAA declined to adopt statistical sampling procedures and stated such a strategy represents a very significant departure from the established effort without any demonstrated improvement in safety. The response further stated that guidance for follow-up action and procedures are available to inspectors in FAA Orders 2150.3A and 8300.10 and currently meetings are being held between FAA and OIG to agree on a process for FAA to refer violations to OIG.

In response to Recommendation 12, FAA did not agree that a material internal control weakness exists because the scope of the audit was foreign repair stations and the data used to support the internal control weakness was SUP information. FAA stated the recommendation is unnecessary because a high level of oversight is provided in the SUP program.

Auditor Comments

After careful analysis of the FAA response, we concluded substantial additional corrective actions and supplemental information from FAA are needed to resolve satisfactorily all recommendations. Although the response indicated concurrence with six recommendations, we agree with the corrective actions planned and taken on only three. The corrective actions reported for Recommendations 1, 3.b, and 4.d are adequate and address the intent of each recommendation.

We request FAA reconsider its response on eight recommendations and implement corrective actions. To support our request, we are providing additional information to assist FAA in reconsidering its response to Recommendations 3.a, 4.a, 5, 6, 7, 9, 10, and 12.

- Recommendation 3.a. Our results disclosed confusion by both repair station personnel and FAA personnel on part substitution requirements of FAR Part 43. The principal ambiguity is what constitutes a minor and major repair. Because of the vagueness of the minor repair definition, a repair station can make a part substitution that may not be compatible with the original design. To ensure compatibility with the original performance requirements, repair stations should be required to consult with the manufacturer prior to part substitution and document the consultation including the input provided by the manufacturer. While any additional guidance on parts substitution is beneficial, without current data on the planned changes for AC 20-62D we are unable to evaluate the merit of the changes. Further, FAA officials have on many occasions cautioned us that because an AC is only advisory, a repair station cannot be compelled to comply.

- Recommendation 4.a. We realize that requiring repair stations to provide activity reports would be contrary to FAA policy. However, the data provided by such reports would greatly enhance FAA's ability to more prudently use its limited surveillance resources. By tailoring surveillance inspections to repair stations with high volume repairs of flight critical components coupled with data on known deficiencies, FAA could better prioritize its limited surveillance resources.

- Recommendation 5. The intent of this recommendation is to provide a mechanism for measuring the quality of a repair station's final work product. We fully realize that all repair stations are required to comply with the repair processes described in their FAA-approved inspections procedures manual. However, as has been proven by this audit and OIG investigations, many repair stations are not adhering to their FAA-approved inspections procedures manual or the most current manufacturers maintenance manuals. Because the FAA surveillance function is process driven, the quality of a repair station's work product is not directly monitored by FAA. By developing and implementing performance standards or benchmarks for repair stations work products, more reasonable assurance of consistent quality repairs would be provided. Rather than short observation of repair processes during an annual inspection, such standards would provide additional confidence in a repair station's work product. For example, a performance standard could be that no more than 10 percent of a repair station's annual work product output should be returned due to premature failure directly attributable to repairs made. Violation of such performance benchmarks should trigger reevaluation of a repair stations actual repair processes.

- Recommendation 6. The independent testing of work products would greatly enhance confidence in repairs made by repair stations and encourage repair stations to implement and adhere to high quality standards. We realize that such a policy change would require FAA to take a more active role in ensuring the quality of work products subject to FAA regulatory control. However, statistically-based testing would send a clear signal to repair stations that their work products are subject to independent analysis with tests results made available to FAA. We advocate a statistically-based testing methodology concentrating on flight critical items. Therefore, although resources will be needed, we do not envision a massive resource intensive effort. We are fully aware of air carrier reliability reports. These reports do provide a measure of performance for all components that are installed and fail in air carrier service. However, this system doesn't provide reliable independent monitoring of the work products of repair stations worldwide. The purpose of FAA's Service Difficulty Reporting program is to collect mechanical reliability reports, analyze the reports, and disseminate trends, problems and safety alert information to the aviation industry and FAA personnel. However, a prior GAO report concluded the program was of little value because of factors stemming from FAA's management inattention. The report concluded that due to insufficient staff and unreliable data, FAA does not analyze the data to detect malfunction trends in certain aircraft models, although they are required to do so by FAA policy. It is shortsighted to expect this system to provide reliable independent monitoring of the work products of repair stations worldwide. We request that FAA reconsider this recommendation and strengthen the internal controls over the work products produced by repair stations.

- Recommendation 7. As evidenced by the results of OIG audits and investigations, FAA's surveillance is not effectively ensuring repair stations comply with the FARs. The surveillance procedures focus on the repair process and do not require minimum testing of data that could quickly confirm the existence of problems. NPG guidelines require an annual surveillance inspection at each repair station. However, during these mostly scheduled annual inspections, observation of the repair process without testing the quality of the data and the work products passing through the process year round does not provide assurance of continuous high quality repair.

- Recommendation 9. The intent of our recommendation is to ensure FAA management has reasonable assurance that inspectors follow up and fully assess the impact of FAR violations. We are aware that standard guidance procedures are contained in the cited publications. However, our audit results disclosed FAA inspectors are not following up and assessing the impact of FAR violations. We have revised and clarified our recommendation to state that standard procedures are needed to ensure that inspectors perform required follow-up assessments for such violations as use of parts and subcontractors not known to be FAA-approved.

- Recommendation 10. We agree that a policy change would be required to expand FAA regulatory authority to cover parts distributors and brokers. To provide more reasonable assurance that only FAA-approved aircraft parts are used, FAA should regulate and periodically inspect aircraft parts distributors or brokers. Although distributors or brokers supply a large percentage of the parts used in repair, they are not regulated by FAA. FAA regulates and periodically inspects all other entities involved in the manufacture and repair of aircraft including manufacturers, air carriers, aircraft owners and operators, repair stations, and mechanics. Because distributors and brokers are unregulated, once aircraft parts pass through distributors or brokers, the regulatory chain of custody of aircraft parts is broken and the risk of unapproved or counterfeit parts entering the supply system increases. To provide a complete regulatory chain of custody and establish accountability, parts brokers and distributors need to be included in the FAA regulatory chain.

  A large percentage (45 percent) of parts we reviewed were purchased through distributors or brokers. Of these parts, 95 percent did not have reasonable evidence of either FAA production approval status, production origin, or conformance with established U.S. or industry specifications. These parts purchased from distributors or brokers often had incomplete, vague or missing documentation or there were incomplete part markings or unmarked packaging. Although this segment of the aircraft industry operatea without FAA regulation or surveillance, the aircraft owners and operators that acquire parts from distributors or brokers rely on these sources to provide approved and conforming parts. We found that end-users are relying on vague certifications from these non-regulated sources. Without regulation and independent surveillance of parts distributors or brokers, the use of parts from these sources exposes the end-user to unknown and unwarranted risks.

- Recommendation 12. A material weakness exists in FAA's repair station surveillance and regulatory structure. . To improve FAA's overall internal control structure, we segmented our recommendations into three areas to provide better assurance that: (i) replacement aircraft parts are FAA-approved, (ii) high volume and high risk repair stations are targeted for surveillance inspections, and (iii) FAA surveillance of repair stations is efficient and effective. Because the corrective actions taken and planned do not fully resolve the deficiencies in the repair station and regulatory control structure, we concluded a material weakness still exists.

Our conclusion that FAA should report a material internal control weakness is based upon our evaluation of both foreign and domestic repair stations. Our scope included FAA certification and surveillance of both domestic and foreign repair stations. The audit covered repair stations in the United States and related FSDOs. For the foreign repair stations, we focused upon repairs made to U.S. registered aircraft.

The corrective actions needed to improve the three areas of weakness complement, but are not replaced by the SUP program. The SUP program is designed to detect SUPs while the focus of our recommendations is to improve the quality of FAA's surveillance and regulatory structure to prevent the introduction of SUPs into the aviation community. We view the SUP program as a detection and measurement tool to provide FAA management data on the number of SUPs that are entering the repair stream because surveillance and regulatory controls are weak.

For recommendations 2, 4.b, 4.c, 8 and 11, we concluded the response did not provide sufficient data for us to fully evaluate FAA's position. In the following paragraphs, we have provided specific comments on each recommendation we considered unresolved because of insufficient information.

- Recommendation 2. To consider FAA's response to this recommendation, we need additional information concerning the ARAC rulemaking process, including clarification on whether ARAC or FAA has final approval of the regulations. Based on our audit, we concluded the legible marking of all parts and evidence of FAA production approval and compliance with the FARs are significant additional internal controls that would decrease the risk of unapproved parts entering the repair system.

- Recommendation 4.b. To determine whether FAA's response meets the intent of our recommendation, we need to review the proposed rating system. We request FAA provide us with a copy of the proposed changes to FAR Part 145 related to repair station ratings. After review of the proposed rating system, we will make a determination on whether we can resolve the recommendation.

- Recommendation 4.c. In order to evaluate FAA's action in response to this recommendation, we need additional information concerning SPAS. We would like to know how SPAS works and FAA's expected outcome of the analysis. We would like to know how often this analytical tool will be used and to what extent. Also, because inaccuracies in the PTRS and VIS data bases have been previously reported, we would like to know how this information is being verified before being used in SPAS. Also, we would like a target date on final implementation of SPAS. We may be able to resolve this recommendation after review of this additional information.

- Recommendation 8. We need additional information on how the information recorded during surveillance inspections has been increased and when this change occurred. We request that FAA provide us with a copy of any written guidance that was distributed to inspectors and an example of an actual inspection report prepared subsequent to this change. These documents will help us evaluate whether FAA's action meets the intent of our recommendation.

- Recommendation 11. We need an explanation on how the development of a comprehensive PMA data base as a commercial activity would be accomplished. We need to know how a commercial entity would track new FAA approvals and certificate revocations and who would be held accountable for the accuracy of the information. With an understanding of how the commercial development of a PMA data base would be accomplished and a target implementation date, we will be better able to evaluate FAA's response to this recommendation.

In summary, we concluded the corrective actions planned and taken only resolved 3 of the 16 recommendations. Therefore, Recommendations 1, 3.b and 4.d are resolved and no further response is required. For Recommendations 3.a, 4.a, 5, 6, 7, 9, 10, and 12, we request the FAA Administrator reconsider the nonconcurrence on these recommendations. For Recommendations 2, 4.b, 4.c, 8, and 11, before we can fully evaluate the response, we request additional supplemental information be provided to us. In accordance with DOT Order 8000.1C, please provide us a supplemental response and target dates on our request for reconsideration and additional data.

Exhibit A

DEFINITION OF FAA TYPES OF PRODUCTION APPROVAL HOLDERS

Approved Production Inspection System (APIS) - FAA approval of parts produced more than 6 months after the issuance of a Type Certificate (TC). A TC is FAA design approval of a complete aircraft, engine, or propeller. The APIS is established and maintained to ensure that each product conforms to the type design and is in condition for safe operation.

Production Certificate (PC) - FAA approval of a quality assurance system ensuring that duplicate products or replacement parts conform to the original type design and are in condition for safe operation.

Parts Manufacturer Approval (PMA) - FAA design and production approval of replacement and modification parts intended for sale for installation on a type certificated product. An FAA PMA is not required for parts produced under a TC or PC, by owners or operators for maintaining or altering their own product, under a Technical Standard Order (TSO), or for "standard" parts (e.g., nuts and bolts) conforming to established industry or U.S. specifications. Each holder of a PMA shall establish and maintain a fabrication inspection system that ensures that each completed part conforms to its design data and is safe for installation on applicable type certificated products.

Technical Standard Order Authorization (TSOA) - FAA approval of the design and production of certain specified articles for which a TSO (minimum performance standard) exists.

Exhibit B
Page 1 of 4

BACKGROUND ON AIRCRAFT PARTS APPROVAL

The Federal Aviation Act of 1958 states the Secretary of Transportation shall prescribe reasonable rules, regulations, and minimum standards governing the design, performance, and the inspection, servicing, and overhaul of aircraft, engines, propellers, and appliances as required in the interest of safety. To implement the Federal Aviation Act of 1958 and to ensure the original and continued airworthiness of aeronautical products (aircraft, aircraft engines, and propellers), the FAA promulgated the FARs in Title 14 of the Code of Federal Regulations. Procedural requirements for the design and production certification of aircraft, engines, propellers, parts, materials, and appliances are contained in FAR 21. Rules governing the maintenance; preventive maintenance; rebuilding; and alteration of aircraft, engines, propellers, and appliances are contained in FAR 43.

FAA Surveillance of Manufacturers

The FAA evaluates quality assurance systems of PAHs every 2 to 4 years. Additionally, the FAA performs routine certificate management inspections, sometimes on a daily basis. The Manufacturing Inspection District Offices (MIDOs) are the FAA field offices responsible for evaluations of PAHs. As of October 1993, the FAA had approximately 100 aviation safety inspectors at 17 MIDOs with oversight responsibility for approximately 1,600 PAHs and a large unknown number of priority parts suppliers.

For the purpose of establishing surveillance priorities, a priority part means any part which could create an unsafe condition in an aircraft, engine, or propeller, if it does not conform to the FAA-approved design data and/or quality control/inspection system requirements. A supplier is any person who furnishes parts or related services (at any tier) to a PAH. FAR 21.143 requires each applicant for a production certificate provide a description of inspection procedures for raw materials, purchased items, and parts and assemblies produced by suppliers. The inspection procedures must include methods used to ensure acceptable quality of parts and assemblies that cannot be completely inspected for conformity and quality when delivered to the PAH. The MIDO

Exhibit B
Page 2 of 4

BACKGROUND ON AIRCRAFT PARTS APPROVAL

having certificate management responsibility for a PAH is responsible for determining which priority parts suppliers should be selected for surveillance and the type of surveillance necessary.

FAA Surveillance of Distributors or Brokers

No surveillance inspections are conducted at aircraft parts distributors or brokers because the FAA has no regulatory authority over them.

FAA Advisory Circulars and Orders

To assist manufacturers, suppliers, owner/operators, and repair stations in complying with the FARs related to aircraft parts, the FAA issues guidance in the form of ACs and Orders. AC 20-62C[1], dated August 26, 1976, provides one technique to aid in the identification of aircraft replacement parts. To assist aircraft manufacturers, suppliers, repairpeople, and owner/operators to fulfill their responsibility to use only materials meeting the requirements of FAR 43.13 (b), the FAA issued AC 21-29A.[2]

"Detecting and Reporting Suspected Unapproved Parts" dated July 16, 1992 defines an unapproved part and provides a method of reporting suspected unapproved parts. Further, FAA Order 8300.10 dated December 14, 1990 gives guidance to FAA aviation safety inspectors concerning parts approval. This order states "An operator using a part of unknown quality, condition, or origin must be able to prove conclusively that such parts conform to the provisions of FAR 43.13."

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[1] The FAA has drafted AC 20-62D. It will revise AC 20-62C in FY 1994.

[2] A revision to AC 21-29A is currently being drafted.

Exhibit B
Page 3 of 4

BACKGROUND ON AIRCRAFT PARTS APPROVAL

AC 20-62C states:

"IDENTIFICATION OF APPROVED PARTS. Approved serviceable replacement parts are identified as follows:

a. By an FAA Form 8130-3 (Formerly FAA Form 186), Airworthiness Approval Tag. An Airworthiness Approval Tag identifies a part or group of parts that have been approved by authorized FAA representatives.

b. By an FAA Technical Standard Order (TSO) number and identification mark that indicates the part or appliance has been manufactured under the requirements of FAR 37[3].

c. By an FAA-PMA symbol, together with the manufacturer's name, trademark or symbol, part number, and make and model of the type certificated product on which the part is eligible for installation, stamped on the part. An FAA Parts Manufacturer Approval (FAA/PMA) is issued under FAR 21.305. The make and model information may be on a tag attached to the part.

d. By shipping ticket, invoice, or other document which provides evidence that the part was produced by a manufacturer holding an FAA Approved Production Inspection System issued under FAR 21, Subpart F, or by a manufacturer holding an FAA Production Certificate issued under FAR 21, Subpart G.

e. By a certificate of airworthiness for export issued by a foreign government under the provisions of FAR 21, Subpart N."

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[3] FAR Part 37 was revoked on September 9, 1980 and was incorporated into FAR Part 21.

Exhibit B
Page 4 of 4

BACKGROUND ON AIRCRAFT PARTS APPROVAL

AC 20-62C also establishes the criteria for using a part when its identity or origin is in doubt. It states: "A serviceable or unserviceable unidentified part would have to be reidentified by the manufacturer or a person possessing the required data to certify that the part meets the standards to which it was manufactured as contained in FAR 21.305." The circular further cautions that surplus military or overstocked or obsolete items may be sources of unidentified replacement parts. It further notes that items salvaged from wrecks and rejected parts sold for scrap, may be common sources of unacceptable parts.

AC 21-29A, dated July 16, 1992, defines an unapproved part as:

"A part, component, or material that has not been manufactured in accordance with the approval procedures in FAR Section 21.305 or repaired in accordance with FAR Part 43; that may not conform to an approved type design; or may not conform to established industry or U.S. specifications (standard parts). Such unapproved parts may not be installed on a type certificated product."

AC 21-29A lists examples of unapproved parts. The examples include, "...but are not limited to:

(1) 'Counterfeit' or fraudulently marked parts, components, or materials;

(2) Parts shipped directly to users by a manufacturer, supplier, or distributor who does not hold, or operate under the authority of, a production approval for the part (e.g., production overruns); and

(3) Parts that have been maintained or repaired and returned to service by persons or facilities not authorized under FAR Parts 43 or 145."

Exhibit C
Page 1 of 2

SCHEDULE OF REPAIR STATIONS AUDITED

Domestic Repair Stations

Repair Station Name and Location	FAA Region	FSDO Location[4]
Air Operations International Miami, FL	Southern	Miami, FL
United Aerodynamics Corporation Miami, FL	Southern	Miami, FL
Ryder Airline Services, Inc. Miami, FL	Southern	Miami, FL
Piedmont Aviation Services, Inc. Winston-Salem, NC	Southern	Winston-Salem, NC

Foreign Repair Stations

Repair Station Name and Location	FAA Region	IFO Location
AEM Limited Stansted, Essex, England	European	London, England
Turner Aviation Limited Glasgow, Scotland	European	London, England
Magec Aviation Limited Luton, Beds, England	European	London, England
H & S Aviation Limited (Div 1 & 3) Portsmouth, Hampshire, England	European	London, England

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[4] We also performed testing at the FSDOs located in Atlanta, Georgia and Orlando, Florida.

Exhibit C
Page 2 of 2

SCHEDULE OF REPAIR STATIONS AUDITED

Repair Station Name/Location	FAA Region	IFO Location
Kearsley Airways Limited Stansted, Essex, England	European	London, England
H & S Aviation Limited Surrey, England	European	London, England
Airmotive Ireland Limited Rathcoole, Dublin, Ireland	European	London, England
Ryder Airline Service Ltd Caledonian Prestwick, Scotland	European	London, England
Allen-Airmotive, Inc. Hoofddorp, Netherlands	European	Frankfurt, Germany
MTU-Maintenance GmbH Langenhagen, Germany	European	Frankfurt, Germany

Exhibit D

STANDARD PART NUMBERS ACQUIRED FROM UNKNOWN MANUFACTURING SOURCES

Part Number	Part Name
AN500A8-5	Screw
AN500AC6-6	Screw
MS20073-04-14	Bolt
MS24254-20P	Connector Pin
MS25274-2	Cap
MS25274-4	Cap
MS28775-016	Seal
MS28782-11	Ring
MS29513-011	O'ring
MS9021-027	O'ring
NAS1105-27W	Bolt
NAS1352-3H14P	Screw
NAS1593-210	Packing (O'ring)
NAS1611-008	O'ring
NAS1611-012	O'ring
NAS1611-021	O'ring
NAS1611-022	O'ring
NAS1611-026	O'ring
NAS1612-004	O'ring
NAS1612-6	Ring

Exhibit E
Page 1 of 4

SCHEDULE OF PARTS NOT LISTED IN CURRENT MANUFACTURERS' MAINTENANCE MANUALS

Domestic Repair Stations

Component Name and Number	Part Name and Number	No. Used in Repair	Difference From Part in Manual
Constant Speed Drive 699647C	Idler Gear 709951	1	Not approved for this model
Hydraulic Valve Actuator 107796A128	Seal MS9021-027	1	Material Composition
"	O'ring NAS1611-015	2	Material Hardness
Tail Skid Actuator R1549-1	Bearing SR45PPDK15/235	1	Radial Clearance
"	O'ring NAS1611-022	1	Material Composition
Generator 28B263-13A	Seal MS28775-016	1	Material Composition
Auxiliary Power Unit 380678-2-2	Bolt MS9489-24	1	Length
Generator 30E02-27B	Ring Retainer 10-92815-37	1	Dimensions
Starter 3605812-21-1	Brush 516040-1	1	Not approved for this model
Transmission 65-26614-25	Bolt NAS1105-27W	1	Not on manufacturer's approved list

Exhibit E
Page 2 of 4

SCHEDULE OF PARTS NOT LISTED IN CURRENT MANUFACTURERS' MAINTENANCE MANUALS

Component Name and Number	Part Name and Number	No. Used in Repair	Difference From Part in Manual
"	Bearing 9305K	1	Commercial bearing; not on manufacturer's approved list
Gear Box 6523467-5	Bearing NAS1197-716	1	Not on manufacturer's approved list
"	Bolt NAS6604-14	1	Not on manufacturer's approved list
"	Nut NAS679A4	1	Not on manufacturer's approved list

Foreign Repair Stations

Component Name and Number	Part Name and Number	No. Used in Repair	Difference From Part in Manual
Standby Power Supply PS823	Battery Pack AB1475	1	Not on manufacturer's approved list
"	Battery Pack AB1476	1	Not on manufacturer's approved list

Exhibit E
Page 3 of 4

SCHEDULE OF PARTS NOT LISTED IN CURRENT MANUFACTURERS' MAINTENANCE MANUALS

Component Name and Number	Part Name and Number	No. Used in Repair	Difference From Part in Manual
"	Machine Screw MS24693S3	7	Head style, material, finish and length
"	Machine Screw MS35206-214	6	Material, finish, length and head radius
Ignition Unit C44TS/4	Tab Washer N78100-3	8	Not on manufacturer's approved list
AC Generator BA02801-1	Bearing 104FFT5G-33	2	Not approved for this model of AC Generator
"	Split Cotter Pin SP90-A7	1	Different length
Vertical Gyro 2587335-21	Bearing SR156WX1K25V0-11	2	Different final polishing
AC Generator 28B141-51-A	Nut AN365-524A	6	Not on manufacturer's approved list
"	Bearing 205FF1116G-18	1	Drawing source controlled

Exhibit E
Page 4 of 4

SCHEDULE OF PARTS NOT LISTED IN CURRENT MANUFACTURERS' MAINTENANCE MANUALS

Component Name and Number	Part Name and Number	No. Used in Repair	Difference From Part in Manual
AC Generator 28B141-51A	Rivet MS20613-5C7	2	Not on manufacturer's approved list
Transmitter 3567313-0001	Bearing SR1-5K3VLC0-11	1	Not on manufacturer's approved list
Starter Generator BC0107-2C	Brush 1530453	8	Not on manufacturer's approved list
	Total	61	

Exhibit F
Page 1 of 2

SCHEDULE OF COMPONENTS SUBCONTRACTED TO REPAIR STATIONS NOT REGULATED BY FAA

Component Name	Component Number	No. of Units	Work Performed
Overspeed Governor	210625	1	Repaired
Constant Speed Unit	8210-004	1	Repaired
Starter Generator	23048-004	1	Inspected
Oil Pressure Transmitter	3567749-9502	2	Overhauled
Torque Transmitter	418-01064	2	Check Calibrated
Oil Cooler	8540012	1	Tested
NG Tachometer	32005-007	1	Tested
NF Tachometer	32005-007	1	Tested
Oil Temp Bulb	52778-56B3A	1	Tested
Overspeed Governor	210625	1	Tested
Starter Generator	23048-004	1	Inspected - Modified
Tachometer Generator (NP)	32 005-007	1	Bench Check
Tachometer Generator (NG)	32 005-007	1	Bench Check

Exhibit F
Page 2 of 2

SCHEDULE OF COMPONENTS SUBCONTRACTED TO REPAIR STATIONS NOT REGULATED BY FAA

Component Name	Component Number	No. of Units	Work Performed
Oil Cooler	8540012	1	Flushed, Leak Checked and Pressure Tested
Oil Pressure Transmitter	1024 PG/SB	1	Repaired
Cylinder	ACM18038	2	Repaired
Total		19	

Exhibit G

AUDIT TEAM MEMBERS

The following is a listing of the audit team members who participated in the Audit of Certification and Surveillance of Domestic and Foreign Repair Stations.

Gary L. Singletary	Regional Manager
Alan D. Robson	Project Manager
Robin L. Purcell	Auditor-in-Charge
Anne V. Longtin	Auditor-in-Charge
Lee Ann Harrison	Auditor
Tina M. Bavaro	Auditor
Sharon S. Patterson	Auditor
Michael J. Leibrecht	Auditor
Kimberly M. Bulman	Auditor
Angela D. Clark	Auditor
Sonia S. Ingle	Auditor

APPENDIX
(9 pages)

U.S. Department
of Transportation

**Federal Aviation
Administration**

Memorandum

Subject: INFORMATION: OIG Draft Report on Audit of the Certification and Surveillance of Domestic and Foreign Repair Stations

Date: FEB 17 1994

From: Administrator

Reply to
Attn of:

To: Assistant Inspector General for Auditing

As requested by your December 17, 1993, memorandum, I have reviewed the subject Office of Inspector General (OIG) draft report. My comments are provided in the attachment.

The draft audit report contains 16 recommendations. I concur with 7 recommendations, partially concur with 3 recommendations, and nonconcur with 6 recommendations. FAA's planned corrective actions for implementing the recommendations with which I fully or partially concur are provided in the attachment. Justification for the nonconcurrences is also provided in the attachment.

The draft audit report is the result of two audits. The first audit entrance conference was held on January 29, 1992, when OIG began its audit of the Surveillance of Domestic and Foreign Repair Stations in the Southern region. The OIG indicated that the audit would be expanded nationwide or worldwide if the findings warranted. The objectives were to evaluate FAA's internal controls to: (1) certify only qualified repair stations; (2) conduct surveillance inspections that assure repair station compliance with the Code of Federal Regulations; (3) track repair station violations until corrective actions are completed; and (4) accurately record and share inspection results. OIG began its audit in the European Region on or about September 1, 1992. On February 5, 1993, FAA received an unofficial copy of the OIG draft report on the Audit of Replacement Aircraft Parts. The recommendations in the unofficial draft report were similar to the recommendations in the draft report on the Audit of Certification and Surveillance of Domestic and Foreign Repair Stations

I appreciate the opportunity to comment on your draft report and request that you incorporate my comments in any final audit report you may issue.

David R. Hinson

Attachment

Attachment

Federal Aviation Administration (FAA) Position on Recommendations Contained in the Office of Inspector General (OIG) Draft Report on the Audit of Certification and Surveillance of Domestic and Foreign Repair Stations

FINDING: The audit report states that FAA approved repair stations performed repairs for U.S. registered aircraft using aircraft parts of unknown design, quality, and origin and may not have fully complied with FAR Part 43 maintenance regulations. OIG found: (i) 12 repair stations used 213 types of parts (14,232 individual parts) that lacked reasonable evidence, as defined by the OIG, to verify either FAA production approval status, production origin, or conformance with established U.S. or industry specifications; (ii) 5 repair stations used 11 U.S. outdated manufacturers' maintenance manuals to perform 47 repairs; (iii) 8 repair stations used 27 types of parts (61 individual parts) not listed in the most current maintenance manuals; and (iv) 3 repair stations subcontracted 16 types of parts (19 individual parts) to repair stations not regulated by FAA. FAA could better detect and correct these practices by conducting more in-depth surveilllance inspections of repair stations and identifying and refining FARs and technical guidance. As a result, until FAA surveillance, FARs, and technical guidance are improved, owners and operators do not have reasonable assurance aircraft maintenance and repair conforms with FAA aircraft airworthiness certificate requirements for type design and condition of safe operations.

OIG Recommendation 1: Continue plans to revise AC 20-62D and ensure the revision is published as planned and includes standard certification requirements for the aviation industry to use that clearly identifies the part number, manufacturing source, and compliance with the FARs for all replacement parts used to repair aircraft or aircraft components.

FAA Response: Concur. Draft Advisory Circular (AC) 20-62D, Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts, was distributed to all FAA Flight Standards and Aircraft Certification offices for review. At the present time, the final draft is in the Chief Council's office for review. It is anticipated that the AC will be issued in fiscal year (FY) 1995.

OIG Recommendation 2: Continue plans to revise and reissue FAR Part 21 and ensure the revised regulations require the legible marking of replacement parts produced by all PAHs comparable to the marking requirements required for PMA manufactured parts and require all PAHs to provide evidence of FAA production approval and certification of compliance with the FARs.

FAA Response: Partially Concur. The Aircraft Certification Service through the Aviation Regulatory Advisory Committee (ARAC) Production Certification Modernization working group is revising the production approval and marking requirements of Federal Aviation Regulations (FAR) parts 21 and 45. FAA will consider this recommendation in the ARAC working group. However, FAA cannot commit to incorporate this recommendation since it is subject to the ARAC rulemaking process. The working group is scheduled to present the Notice of Proposed Rulemaking to FAA in January 1996.

OIG Recommendation 3: Revise FAR Part 43 and provide technical guidance to clearly define acceptable part substitutions and allowable type of subcontracted repairs.

a. Require repair stations to have authorized officials evaluate the safety impact of all part substitutions prior to installation and document the justification for using alternate parts.

FAA Response: Nonconcur. The regulations already cover the methods by which parts substitution can take place. Additional guidance will be provided in AC 20-62D

b. Clarify which repair functions are allowed to be subcontracted to repair stations not approved by the FAA.

FAA Response: Concur. **FAR section 145.47 (b) states a repair station may contract to an uncertificated repair station provided it meets the criteria in FAR section 145.57 (c). The preamble to FAR part 145, amendment 145-21, sets forth further clarification of the conditions required to be met to qualify for contracting out. The items that are allowed to be contracted out apply only to those items listed in FAR part 145 appendix A as designated by an asterisk. The audit report did not indicate whether or not all the contracting out complied with the FAR. The audit report did indicate there may be some confusion in the field as to the application of the rules for contracting out. We are currently rewriting FAA Order 8610.3, Certification of Repair Station for Class and Limited Ratings, Including the Privileges of Those Ratings, to clarify applications of contracting out. The target date for issuing the revised FAA Order 8610.3 is FY 1994.**

FAR part 145 is also being rewritten to clarify contracting out. Proposed FAR section 145.213 states which repair stations can contract out. The proposed appendix A to FAR part 145 indicates which functions can be contracted out to a certificated agency and which functions can be contracted out to a non-certificated agency. This proposed revision to FAR part 145 is planned for issuance in FY 1995.

OIG Recommendation 4: Continue the development of a statistically based management feedback system. Ensure the system includes development of information on the volume, type, technical sophistication, safety sensitivity, or criticality of repairs made by each repair station and the extent and significance of problems found at repair stations in order to target major or risk sensitive stations for in-depth FAA surveillance. Specifically,

a. Require domestic repair stations to report activity level each year similar to requirement for foreign repair stations.

FAA Response: Nonconcur. The current regulation does not require a domestic repair station to report its activity. To require domestic repair stations to report activity levels would require a major change in FAA policy. Such a change at this time is not desirable due to the additional burden on the current available resources and would not enhance safety .

b. Redefine repair station ratings to more clearly identify what type repairs each repair station is approved to repair.

FAA Response: Concur. Due to the growth of the industry and ongoing expansion in the repair station field, it was decided to broaden the rating system in the proposed FAR part 145 revision. The current rating system contains 9 class ratings and 13 limited ratings. Under the proposed FAR part 145, there will be 29 class ratings and 9 limited ratings. This should clarify what repairs each repair station is approved to conduct. We feel this meets the intent of the OIG's recommendations and no further action by the FAA is required.

c. Identify recurring problems and high risk areas by analyzing inspection results.

FAA Response: Concur. Currently, certification, surveillance, and inspections are stored in the existing Program Tracking and Reporting Subsystem (PTRS) data base. Principle inspectors review this data periodically to identify potential problem areas.

During FY 1991, Flight Standards Service decided to proceed with the development of an analytical tool for monitoring and evaluating a certificate holder's compliance performance. This analytical tool is known as the Safety Performance Analysis Subsystem (SPAS). The SPAS takes information from a variety of existing data bases, including PTRS and the Vital Information Subsystem. The SPAS correlates information and sets warning levels to alert inspectors of pending safety issue trends. Currently, SPAS is being prototyped in nine FAA regions to validate requirements and to test new indicators.

d. Develop in-house training courses for aviation safety inspectors concerning areas most at risk and the most efficient and effective inspection techniques to use.

FAA Response: Concur Presently, courses in certification of repair stations and generic courses on the surveillance of air agencies are taught at the FAA academy. Because the present material is narrow in scope, the academy is developing a 64-hour course that will be taught in a classroom setting over a 2-week period. We intend to supplement this course with a computer based instruction to be distributed to the field offices. This course should be completed by FY 1995.

OIG Recommendation 5: Develop standard performance measures that represent the success or failure of a repair station's operation.

FAA Response: Nonconcur. All repair stations must maintain a minimum standard. These standards are driven by the complexity of the repair station (i.e., based on the size and type of work completed). This standard is outlined in FAR parts 43 and 145 and guidance is published in FAA Order 8300.10, Airworthiness Inspector's Handbook.

OIG Recommendation 6: Require independent testing, on a statistical basis, of components and products repaired by repair stations to evaluate the adequacy of work performed.

FAA Response: Nonconcur. This recommendation will require a rather involved change to the existing regulations and policies and the impact on resources is something that must be taken into consideration. At the present time, there are reliability programs used by the air carriers. Malfunction and defect and mechanical reliability reports are used by others and are also required by regulation and tracked through a central data base system which is currently being reviewed for improvement. Inadequacies in work performed are detected by analysis of data from these systems.

OIG Recommendation 7: Develop a statistical approach to the surveillance process such as standard requirements for aviation safety inspectors to review a certain number of work orders, manufacturers' maintenance manuals, and the traceability of parts used in repair.

FAA Response: Nonconcur. The FAA inspection program continues to be an effective and efficient means of assuring compliance with the FAR. The program has evolved by our own experience and through the recommendations of others. To adopt statistical sampling procedures in the case of repair stations represents a very significant departure from our established effort without any demonstrated improvement in safety. The National Program Guidelines establish a minimum level of surveillance to be performed at the repair station. Additional surveillance is undertaken when deemed necessary by the principal maintenance inspector or when indicated by adverse trends.

OIG Recommendation 8: Require aviation safety inspectors to document tests performed during each surveillance inspection and the safety implications of any deficiencies found.

FAA Response: Concur. FAA does require aviation safety inspectors to document tests performed during each surveillance inspection and the safety implications of any deficiencies found. The level of detail recorded during surveillance inspections has recently been increased and presently meets our programmatic needs. We believe this action meets the intent of the recommendation and no further action by FAA is required.

OIG Recommendation 9: Develop standard procedures for follow-up actions that inspectors should take when they find FAR violations and require standard document including the preparation of a SUP notification for safety-impacted parts repaired using outdated manuals, incorrect part substitutions, or unauthorized repair stations.

FAA Response: Nonconcur. Guidance for followup action and procedures are available to the inspectors in FAA Orders 2150.3A, Compliance and Enforcement Program, and 8300.10, Airworthiness Inspector Handbook.

A meeting was held in FY 1992 with FAA's Chief Counsel, Assistant Secretary for Administration and OIG to discuss this recommendation which resulted from OIG's audit of FAA's Inspection Program. The outcome of the meeting was the forming of a work group to agree on a process for FAA to refer violations to OIG. These meetings are ongoing and the next meeting is scheduled for March 3.

OIG Recommendation 10: Expand regulatory authority to require FAA surveillance of aircraft parts distributors or brokers and to require distributors or brokers maintain documentation for the traceability of all parts sold or traded and provide to purchasers documentation supporting the FAA approval status and the manufacturing origin of all such aircraft parts.

FAA Response: Partially concur. FAA policy changes would be required to effect this recommendation. FAA does not believe that these changes would necessarily improve safety. We do know that a major increase in resources and industry burden would be brought about by such regulations. Instead, FAA and industry working groups are developing an alternative approach using the concept of voluntary accreditation of suppliers by FAA-sanctioned third parties. We believe this meets the intent of the recommendation and no further action by FAA is required.

OIG Recommendation 11: Provide guidance to the aircraft repair industry on the PAH and repair station data available from FAA including instruction on how to access current data on PAHs, drop-ship authorization holders, and repair station authorizations for all aircraft parts.

FAA Response: Partially concur. FAA does not have this information readily available for the aircraft repair industry. In response to the OIG draft survey report on Parts Manufacturer Approval (PMA), Process, FAA stated that a comprehensive PMA data base would best be accomplished as a commercial activity. FAA has asked industry to chair an industry-wide task team to determine the appropriate course of action.

FAA will contact the repair station industry to determine its need for this information and appropriate delivery methods. We believe this meets the intent of the recommendation and no further action by FAA is required.

OIG Recommendation 12: Report the material internal control weaknesses disclosed in this report to the Secretary for inclusion in the Secretary's annual report to the President and Congress as required by the FMFIA.

FAA Response: Nonconcur. We do not agree that an internal control weakness exists. The basis for our reasoning is the scope of this audit was foreign repair stations. However, the data used to support the internal control weakness is SUP information. The previous audits on parts issues made no recommendations nor suggested any internal control weaknesses. The SUP program is done in concert with OIG and we have developed standardized procedures and local coordinators to address these specific unapproved parts issues. Since this high level of oversight is provided in the SUP program, we feel this recommendation is unnecessary.

U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: INFORMATION: OIG Final Report on the Audit of the Certification and Surveillance of Domestic and Foreign Repair Stations

Date: May 6, 1994

From: Administrator

Reply to
Attn. of: BBrosious:x79009
Fax: 267-5379

To: Inspector General

As requested, we have done an extensive review of the Audit of the Certification and Surveillance of Domestic and Foreign Repair Stations. The attached report responds to each of the policy issues raised in the audit. In addition, we have analyzed, to the extent possible, the specific examples which were contained in the report.

There are several recommendations contained in the report which will enhance our certification and surveillance program and with which we concur. As requested, we have provided additional information and targeted implementation dates for those recommendations.

After careful review and full analysis, we continue to nonconcur with many of the recommendations. The report sets forth in detail the reasons for these nonconcurrences including inconsistency with the current regulatory scheme, increased costs without commensurate improvements in safety, and insufficient data to support a finding of material weakness.

We are particularly concerned with your extrapolation of data collected from a limited geographical area to the repair station industry as a whole. Seventy-five percent of the domestic repair stations audited were located in the same city. Audits of more diverse locations may have provided a better evaluation and reflected a more accurate representation of the repair station industry. Additionally, the audit conclusions are based on the performance of a nominal number of domestic and foreign repair stations (.09 percent of the domestic repair stations and 2.9 percent of the foreign repair stations).

I appreciate the opportunity to comment on your final audit report.

David R. Hinson

Federal Aviation Administration
Response to the Office of the Inspector General Audit of Certification and Surveillance of Domestic and Foreign Repair Stations

May 6, 1994

Federal Aviation Administration
Response to the Office of the Inspector General
Audit of Certification and Surveillance of
Domestic and Foreign Repair Stations

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Federal Aviation Administration
Response to the Office of the Inspector General Audit of Certification and Surveillance of Domestic and Foreign Repair Stations

I. INTRODUCTION

A. Purpose

On December 17, 1993, the Department of Transportation (DOT) Office of the Inspector General (OIG) delivered its official *Draft Report on Audit of the Certification and Surveillance of Domestic and Foreign Repair Stations.* The Federal Aviation Administration (FAA) responded to the recommendations in that report on February 17, 1994. OIG issued its final report (Report No. R4-FA-4-009) on March 7, 1994, requesting that FAA reconsider its responses to certain recommendations and provide additional information with some of its responses. This document comprises FAA's response to the March 7 OIG report and a detailed response to the OIG's findings and concerns. It also discusses some of the key underlying issues that are critical to understanding the findings.

B. Summary

Between January 1992 and May 1993, OIG audited 4 domestic and 10 foreign repair stations certificated by the FAA. (As of that time, FAA had certificated a total of 4,400 domestic and 344 foreign repair stations). OIG also audited FAA certification and surveillance activities during fiscal years 1991 and 1992. The OIG report stated that FAA had established an adequate certification process for new repair stations, and that FAA aviation safety inspectors had accomplished 98 percent of the required domestic and 99 percent of the required foreign repair station annual surveillance inspections, and had tracked repair station violations and recorded inspection results. However, OIG also stated that its repair station audits disclosed the use of aircraft parts of unknown design, quality, and origin; outdated repair manuals; substitute parts not approved by manufacturers; and parts repairs made by subcontractors not approved by the FAA.

FAA previously discussed with OIG a *Draft Report on Audit of Aircraft Replacement Parts*, completed by OIG for discussion purposes in late January 1993. That draft was based on the preliminary results of several audits, then ongoing, including Helicopter Inspection Requirements, Certification and Surveillance of Domestic and Foreign Repair Stations, and Pricing of Aircraft Parts. FAA has studied the broad issues and concerns that OIG raised, as well as the specific cases on which OIG based its recommendations. FAA was particularly concerned with determining whether any of OIG's findings had safety implications and with the basis for the criteria that the OIG used to reach its conclusions.

FAA concurs with six of the OIG's recommendations, partially concurs with four recommendations, and does not concur with six recommendations. Most of the recommendations with which FAA concurs or partially concurs involve initiatives already underway to strengthen the existing system used to prevent the use of unairworthy parts on aircraft. However, FAA strongly disagrees with OIG's conclusion that improperly documented parts or parts of unknown origin are widespread and with OIG's implication that the use of such parts may result in safety problems. FAA's investigation of the specific cases that OIG addressed show that OIG based its conclusions on incomplete information and auditors' criteria that were inconsistent with the Federal Aviation Regulations and FAA written policy. In 98 percent of the cases in which OIG provided information sufficient to accomplish a complete investigation, FAA personnel with the technical expertise to judge the acceptability of aeronautical parts found information to verify the integrity of any part in question.[1] Furthermore, these FAA investigations confirmed that OIG did not demonstrate any safety problem resulting from the existence of counterfeit parts or the fraudulent documentation or marking of parts.

The OIG report specifically identifies only one case related to counterfeit parts; in that case, which involved counterfeit engine bushings, the engine manufacturer does not consider engines operating the bushings to be a safety concern. A joint industry/FAA program was already focusing on the detection and removal of those counterfeit parts from the aviation industry inventory. Most other cases relate primarily to maintenance procedures issues.

There were a total of 64 individual part types cited in the OIG report for which there was some specific information. These include the parts in OIG Exhibits D and E, but not the components listed in Exhibit F (related to contracting out work to non-certificated facilities). The FAA investigated each case, but was constrained in certain cases by limited information. Following is a summary of the results of the OIG audit and the subsequent FAA investigation:

OIG Conclusions

- 27 parts were not in manuals used for repairs
- 22 parts lacked adequate traceability
- 11 cases of outdated manuals used for repairs
- 3 cases of no direct ship authority
- 1 case of counterfeit parts

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[1] Integrity, for this purpose, means that the manufacturer was identified and/or the part was found to meet all applicable regulatory standards.

FAA Conclusions

- 31 cases with sufficient documentation to trace part to an approved source 34
- 11 cases of an approved part substitution consistent with Title 14 Code of Federal Regulations (CFR) 43.13 (8 of which were standard parts) 9
- 4 cases of no direct-ship authority (production manufacturer approval (PMA))
- 2 examples of an incorrect maintenance procedure
- 1 case of no PMA
- 1 case of counterfeit parts
- 1 case in which the part in question was not actually used
- 13 cases in which information was insufficient for a conclusion.

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FAA found that, of the 51 cases in which information sufficient to investigate OIG findings was available, only 8 (16 percent) were problems of any type and only 1 (2 percent) of those related directly to unapproved (counterfeit) parts.

This specific counterfeit part case was first investigated by the OIG and FAA in 1991 (see page 25 of this report). The FAA determined that use of the part would not adversely affect safety, and took action to notify potential users of its existence. The FAA is unaware of the outcome of the OIG investigation.

C. Overview of this Report

This response is organized in four main sections. Section I provides background and summary. Section II presents a discussion of the key issues raised by OIG. These issues include traceability and documentation of parts, including standard parts; repair station practices concerning maintenance manual revisions; the use of parts not listed in the Manufacturer's Manual; and subcontracting of maintenance work to repair facilities not certificated by FAA.

Section III addresses each OIG finding for cases in which OIG gave specific information. In these cases, FAA followed up whenever the repair station audited was identified in connection with a part, and obtained parts origin documentation that OIG had apparently determined to be unavailable. FAA examined the repair station actions questioned, within the context of the requirements of the Federal Aviation Regulations and FAA written policy. This research indicated that the repair stations' actions generally were in compliance with existing guidance on the use of approved parts. However, in some cases, errors in maintenance procedures were made. In other cases, such as subcontracting, FAA guidance has not been sufficiently clear, and the guidance is being reconsidered. These are not specifically cases of unapproved parts.

Section IV addresses OIG's recommendations, FAA's initial responses to those recommendations, the additional information provided in response to the OIG's March 7, 1994, request, and FAA reconsideration of certain recommendations.

This report's conclusions are presented in Section V, which particularly addresses OIG's question about the regulation of parts distributors and brokers as potential sources of suspected unapproved parts.

II. GENERAL DISCUSSION

This section addresses the underlying issue of what criteria are suitable for satisfactorily determining that parts are safe. The section also discusses four broad issues that OIG raised as a result of its audit findings. These discussions overlap to some degree because of the structure of the OIG findings.

A. Criteria

OIG states as a finding that a number of repair stations' parts utilization practices failed to meet OIG-defined criteria for reasonable evidence of FAA production approval status, production origin, or conformance with established U.S. or industry specifications (standard parts) (March 7, 1994, OIG report, page 4).[2] OIG's criteria were based on common standards of good business practices and on Advisory Circular (AC) 20-62C, Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts (August 26, 1976). The criteria listed in the AC include: FAA Form 8130-3, Airworthiness Approval Tag; a Technical Standards Order (TSO); a Parts Manufacturer Approval (PMA); a shipping ticket, invoice, or other purchase document; an Export Certificate of Airworthiness; owner-produced parts (14 CFR 21.303(b)(2)); and any other method approved by the Administrator (14 CFR 21.305(d)).

In addition to outlining methods of identifying approved parts, AC 20-62C discusses the need to test, examine, or operate unserviceable (repairable) parts, appliances, and components to determine if the articles used meet the requirements of 14 CFR 43.13. The AC states that, to certify that the part meets the standards to which it was manufactured as contained in 14 CFR 21.305, an unidentified serviceable or unserviceable part would have to be re-identified by the manufacturer or a person possessing the required data.

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[2] Subsequent references to the March 7, 1994, OIG report appear only as a page number, i.e., (page 4).

OIG previously had indicated that it intended to use its own criteria rather than only using criteria based on the Federal Aviation Regulations and FAA policy and written guidance. On page 5 of the *Draft Report on Audit of Aircraft Replacement Parts*, OIG noted that it had expanded on FAA-specified criteria as it believed necessary to provide reasonably positive assurance, based on purchase documents and/or physical markings, to show the intended use of the part, its manufacturer, and FAA approval for that manufacturer to produce aircraft parts.

Based on these additional criteria, OIG also found that repair stations used outdated manufacturers' maintenance manuals, used parts not listed in the manufacturers' maintenance manuals, and subcontracted work to repair facilities not certificated by the FAA. These findings were discussed in the *Report on Audit of the Certification and Surveillance of Domestic and Foreign Repair Stations*.

It is important to note, however, that none of these practices necessarily indicates that a part is unsafe, and under certain circumstances, all of these practices may be acceptable under the current structure of the Federal Aviation Regulations and FAA written policy and guidance. Nevertheless, OIG suggests that FAA could better detect practices that violate the OIG criteria established for this audit by improving FAA surveillance, the Federal Aviation Regulations, and FAA policy and guidance. OIG states that, until FAA makes these changes, owners and operators will not have reasonable assurance that aircraft maintenance and repairs conform with FAA aircraft airworthiness certificate requirements for type design and condition for safe operation.

It is important to recognize the variety of acceptable sources for parts that are airworthy or, through proper maintenance, can be made airworthy. Because of this, it is difficult to establish a simple set of documentation-based criteria, or markings, to show a product's origin or production approval status, and it is impractical to establish these criteria as the sole evidence of a part's eligibility for use on an aircraft. The determination of whether an aeronautical part is approved for use on a type certificated product is neither a legal nor an administrative determination, but a technical one. Such a technical judgment must be made by a qualified individual, i.e., a person with appropriate aviation training, experience, and in certain cases, FAA certification. The selection of safe parts in aircraft or component maintenance is a matter of not only ensuring that the part has appropriate, conveniently available documentation, but also, and at least as important, ensuring that the part is used in the intended application. Thus, the part selection function is an element of a broader, technical system. To ensure that persons performing aviation maintenance are able to perform this function, the FAR establishes requirements for training and certificating mechanics, repairmen, air carriers, and air agencies, and for persons with inspection authorization. The FAR also address the procedures for performing maintenance, creating and maintaining maintenance records, and inspecting parts received by repair stations and by owners and operators, who also are involved in maintenance. The system involves inspections at the time of part fabrication, with appropriate FAA approvals, as well as inspections at the point of part usage. The FAA system requires certificated persons at all levels—individuals, owner/operators, repair stations, approved manufacturers—to be vigilant for the existence of unapproved parts before such parts are used on aircraft.

Unapproved parts—parts of suspect origin or counterfeit parts, as opposed to parts that simply lack certain, immediately available documentation—are generally reported by mechanics and repair stations, or by manufacturers who become aware of their existence on the market. The detailed sections that follow in this response to the OIG report will demonstrate that, in the cases in which repair stations were unable to produce the OIG-required documentation, it was still possible to verify that the parts were airworthy according to FAR criteria and thus show that the parts were neither counterfeit nor fraudulently documented, and were safe.

According to the National Transportation Safety Board (NTSB), an air transportation accident in which a counterfeit or fraudulently documented part was found to play either a causal or a contributing factor has never occurred in the United States.[3]

B. Part Documentation

The OIG report states that, at the 14 repair stations audited, "43 percent of the 495 types of newly purchased parts selected lacked reasonable evidence, as defined by OIG, to verify either production origin, FAA production approval status, and/or conformance with industry or U.S. specifications." OIG stated that, in the case of parts obtained from distributors or brokers, 95 percent of the types of parts lacked the data necessary, in the auditors' opinion, to determine positively that the parts met FAA approval requirements or minimum industry or U.S. specifications. Although these findings are listed as part deficiencies, they actually relate to possible documentation deficiencies based on the OIG-established criteria. Of the cases in which OIG provided specific information that FAA could check, only one case was found to involve parts of questionable origin or questionable conformance to industry standards, and FAA had already been investigating that case.

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[3] NTSB testimony before the House Appropriations Committee, March 16, 1993.

Part Origin, Approval, and Conformance

The first area of deficiency, according to the OIG report, related to part origin, approval, or conformance. OIG stated that incomplete or vague or missing documentation, or incomplete or missing markings on the parts or packaging, made positively determining the original production source of the parts impossible. The OIG report acknowledged that the Federal Aviation Regulations do not require the marking of all aircraft parts, but also stated that marking the parts or packaging would facilitate the identification of approved parts. Certain parts that OIG discussed had already been installed on aircraft or components and were unavailable for OIG to inspect for helpful markings (page 12).

The FAA criteria for reasonable evidence of part origin and conformance to standards are based on the Federal Aviation Regulations and FAA written policy. This is explained in one of the documents used and cited by OIG, AC 21-29A, "Detecting and Reporting Suspected Unapproved Parts" (July 16, 1992). The AC states that "an operator using a part of unknown quality, condition, or origin must be able to prove conclusively that such parts conform to the provisions of FAR 43.13." (14 CFR 43.13 addresses the performance of maintenance.) Using this criterion, FAA reviewed each case cited by OIG and found that, in every case, reasonable evidence could be found to conclusively show the part's origin or its conformance to industry standards. Even though complete documentation may not have been readily available at the time of the OIG audit, that is not grounds for labeling a part unapproved, as the AC indicates. The inquiries made by FAA field personnel went beyond a simple review of documents, and included tracing items to reconstruct the logic that the person(s) installing the parts used to determine the parts' acceptability. In some cases, FAA contacted engineering personnel to obtain the history of parts.

There is no regulatory requirement that all parts be traceable back to their origin, nor is that necessary for safety. Section 91.417 of the Federal Aviation Regulations requires that maintenance records contain information on the current status of life-limited parts (identified with serial numbers) of each airframe, engine, propeller, rotor, and appliance. New aircraft are purchased with millions of installed parts that do not carry records of production origin with them upon transfer of the aircraft. These parts are routinely removed, and, with proper maintenance, returned to service and accepted throughout the industry, safely and in accordance with regulations.

Standard Parts

OIG states that compliance with the Federal Aviation Regulations requirements for standard parts cannot be established conclusively without documentation showing where the standard parts were manufactured (page 12). However, 14 CFR 21.303, which establishes how aeronautical parts may be produced, states that standard parts (such as bolts and nuts) that conform to established industry or U.S. specifications need not be produced pursuant to a PMA. Thus, the regulation establishes that the critical guideline for standard parts is their conformance to design and quality standards rather than who produced them. Advisory Circular 43.13-1A, Aircraft Inspection and Repair—Acceptable Methods, Techniques, and Practices (change 3, 1988), provides guidance on the identification markings that permit an installer to determine which standard applies to a given standard part. These items' part numbers specify the standard to which the part was manufactured. For example, an AN prefix indicates that the part was manufactured to an Army/Navy standard, and an NAS signifies a National Aircraft Standard. Further, bolts and rivets are identified with code markings on their heads.

These standards and designators are very well known throughout the aviation industry. Aviation maintenance technicians are taught the identification and use of standard parts as part of their training and certification process. ACs 65.9A and 43.13-1A include guidance on the identification markings used by the installer to determine which standard applies to the part. The ACs also provide guidance on when the use of standard parts is appropriate. The use of standard parts in aviation is based upon technical determinations made by the type certificate holder and FAA during the design process, or through subsequent analysis showing that the use of such parts meets technical requirements. These determinations are made in accordance with applicable certification standards defined in the Federal Aviation Regulations. This analysis process takes into account how critical the application is to the safety of flight, the ability of the installer to determine that the part meets required standards, and the experience of the aviation community with the performance record of the part.

Additional mechanisms exist to detect standard parts that do not conform. For example, FAA participates in the Government-Industry Data Exchange Program (GIDEP). GIDEP is a cooperative program in which Government agencies work with industry participants concerned with maintaining quality standards for various types of parts, components, materials, manufacturing processes, and test equipment. The program helps communicate the nonconformance of parts or materials, including problems that could lead to a safety hazard.

No improvement in safety would be gained if, in addition to conforming to industry standards, standard parts carried with them detailed documentation indicating where they were produced. The manufacturers of standard parts are not FAA-approved manufacturers, so such documentation would carry no special significance.

Parts Manufacturer Approval

Related to the documentation and proof of origin issue is the question of whether a manufacturer has approval to ship certain products directly to end-users. Such approval may come through one of two forms:

1. Direct FAA production approval (e.g., a PMA or TSO); or
2. An FAA production approval holder granting authority to the supplier to ship parts directly to end-users.

The PMA question was thoroughly addressed in the OIG *Survey Report on Parts Manufacturer Approval Process* (Report No. R6-FA-4-007, March 7, 1994), and in FAA's response to that report, which OIG has accepted. As discussed in FAA's response to that report, FAA agrees that inconsistencies exist in the handling of PMA issues, but disagrees that this is a problem specifically related to counterfeit, fraudulently documented, or unsafe parts.

In particular, the use of parts received from suppliers without direct shipping authorization is often the result of confusion between the manufacturer and the supplier. The result, in practical terms, is that a mechanic uses a part listed in the appropriate manual or other documentation for a given repair. However, it has not been documented that the part has passed through the manufacturer's approved quality control system. As noted by OIG, FAA Order 8120.2A, Production Approval and Surveillance Procedures, states that a supplier that directly ships parts without the parts first being processed through the approval holder's receiving inspection must have approved quality procedures in place and must issue a shipping ticket, invoice, or similar document stating that the part was produced under the terms of the production approval. The documentation should identify the product on which the part is eligible for installation. However, Order 8120.2A was written for use by Aircraft Certification Service personnel involved in the evaluation, approval, and surveillance of production activities of manufacturers and suppliers. Aviation Safety Inspectors of the Flight Standards Service typically do not enforce the provisions of this order in their surveillance of repair stations, and there is no practical expectation that the repair stations themselves will make the distinctions specified in the order. Aviation maintenance personnel, understandably, and with good justification, may conclude that a part listed under the supplier's name and part number in the manufacturer's maintenance manual as appropriate for a particular repair may be used regardless of whether the part was shipped directly or via the production approval holder. FAA has programs underway to clarify and resolve this issue, which should not be confused with the question of unapproved or unsafe parts, or with repair station procedures.

C. Use of Outdated Manuals

OIG auditors reviewed the manufacturers' maintenance manuals at repair stations, recorded the revision dates of each manual, and then contacted the manufacturers to verify the current revision dates. The auditors found cases in which manufacturer' maintenance manuals used by repair stations did not include the most current revisions.

FAA routinely encourages repair stations to maintain the latest revisions of manufacturers' maintenance manuals that are used. However, 14 CFR 43.13 requires that maintenance, alteration, or preventive maintenance be performed using the methods, [illegible] techniques, and practices prescribed in the current [illegible] manufacturer's maintenance manual, or the Instructions for

Continued Airworthiness prepared by the manufacturer, or other acceptable methods, techniques, and practices, such as operations specifications approved under FAR parts 121, 123, 127, or 135 or an inspection program approved under FAR 91.409(e). Thus, it is acceptable for portions of the manual to be out of date as long as the portion of the manual that applies to the specific action performed contains the most current information, or if other acceptable or required data is used for the repair.

Most of the cases cited in the OIG report did not indicate whether the auditors examined specific information used for repairs or if they simply looked at the revision status of the manual. However, OIG reported that it expanded its audit at one repair station because FAA previously had found out-of-date manuals at that repair station. This expanded audit revealed what the auditors believed to be examples of outdated manuals used to repair parts. FAA agrees that, if the specific portions of the manuals used to perform repairs were out of date, the repair may have been improper and additional follow-up is warranted. However, the use of out-of-date maintenance manuals is an example of an improper maintenance procedure and does not fit into a discussion of counterfeit parts or fraudulent documentation issues.

D. Use of Parts Not in the Manufacturer's Manual

OIG criteria included verifying that repair stations used parts that manufacturers recommended in their maintenance manuals and the Illustrated Parts List or in the Illustrated Parts Catalog (IPC). OIG stated that, when the auditors identified part substitutions, they contacted the appropriate manufacturers to determine if the manufacturers approved of the substitute parts.

An IPC is not the sole source of replacement parts for any product. The manufacturer may generate other documents; such as Service Bulletins, that provide information about approved parts.

More importantly, the manufacturer does not determine the applicability of substitute parts. Approved substitute parts do not even have to be acceptable to the manufacturer; consequently, asking a manufacturer if a particular part is acceptable may not provide enough information to conclusively determine whether a part is approved. Very often, aftermarket parts (spares) are not included in any of the manufacturer's documents because the part's approval basis is not related to the original manufacturer.

According to 14 CFR 21.303, replacement or modification parts (other than standard parts) must be produced pursuant to a PMA; under a type or production certificate; under an FAA Technical Standard Order; or by an owner or operator for maintaining or altering that person's own product. Thus, FAA can issue a PMA for a substitute part. In addition, if a repair station is accomplishing work for an air carrier under the provisions of 14 CFR 145.2, a part supplied by the air carrier may be used, in certain circumstances, instead of the part found in the IPC.

Determining if a part is an approved substitute for one listed in an IPC often requires a review of several other forms of documentation. It also can require researching several sources beyond the original manufacturer or supplier of the part, and can be a technically complex process.

From a reading of the Federal Aviation Regulations and FAA technical guidance, the OIG auditors inferred that no part substitution that is not recommended by the manufacturer should be allowed, and they discussed this issue in conjunction with the separate issue of the distinction between major and minor repairs or alterations. The report (page 23) cites guidance to FAA inspectors in FAA Order 8300.10, which recommends that, when working on field approvals of major repairs and major alterations, inspectors should seek advice from FAA engineering experts on certain topics such as parts substitution.

It is important to note that the chapter of FAA Order 8300.10 that is cited by OIG (Volume 2, Chapter 1, "Perform Field Approval of Major Repairs and Major Alterations") addresses field approval for major repairs and major alterations, and not specifically the topic of parts substitutions. As previously discussed, a network of regulations and guidance and a system of training and certificating mechanics exist to address the matter of substitution of parts. Assistance and advice on parts substitutions, as well as a long list of other aspects of the field approval, are recommended to ensure that an inspector grants field approval only when he or she is satisfied that the product will be airworthy and will conform to regulatory requirements. Thus, the OIG implications that are apparently based on this guidance are not necessarily relevant to the question of parts substitution.

E. Subcontracting of Work to Organizations Not Regulated by FAA

OIG reported all cases of work subcontracted to repair stations not regulated by FAA, because, the report states, it was unclear from the records whether the subcontracting was proper under 14 CFR 145, Appendix A. The OIG report states that the descriptions of work performed and the regulations were not specific or clear enough to make a determination. The report also states that FAA Headquarters officials can make the necessary compliance and safety determinations. Although such subcontracting is acceptable under certain conditions, and although the OIG report contains no assertion or information indicating that the subcontracting the auditors reviewed was improper, the subcontracting issue is listed by OIG as a weakness in the FAA internal control system.

FAA agrees that there has been inconsistency with regard to the issue of subcontracting work to non-certificated repair facilities. In part, this is because the technology of the industry has changed dramatically during the past few years. FAA has issued policy and guidance material on this issue and is in the process of revising FAA Order 8610.3, Certification of Repair Station for Class and Limited Ratings.

On January 24, 1994, FAA issued interim guidance on the contracting issue to all regional Flight Standards division managers. The guidance is intended to ensure that inspectors uniformly understand the requirements and policy as previously issued.

Section 145.47 of the Federal Aviation Regulations specifies what work may be contracted out, including work to a non-certificated source, under certain conditions. In addition, Appendix A of Part 145 lists job functions that repair stations under the various ratings must be capable of performing. Appendix A notes that, when an asterisk is shown after any job function listed, the applicant for the rating "need not have the equipment and material on his premises for performing this job function provided he contracts that particular type work to an outside agency having such equipment and material."

The FAA's January 24, 1994, guidance states that "Appendix A of Part 145 was never envisaged as being able to specify all the possible services and/or repairs that would be faced by the repair station community. Additionally, the appendix has not been maintained to keep up with the changing state of the art, as it applies to the repair station industry." The guidance sets forth criteria for inspectors to use when evaluating whether contracting out is appropriate for a function not marked with an asterisk in the appendix.

FAA plans to further address the issue of contracting out work in the proposed revision to Part 145 of the Federal Aviation Regulations.

III. OIG EXAMPLES OF AUDIT RESULTS

This section briefly describes each OIG example for which there was sufficient detail to permit FAA to investigate the case. The results of the FAA investigation follow each example. Examples include those used in the body of and appendices to the OIG report.

A. Documentation

The OIG report states that repair stations routinely accept and use parts regardless of incomplete and vague documentation (page 12). Three examples were given:

1. Bearing—Part Number 54322
REF: OIG Report, pages 12 & 13

The OIG report states that bearings were received from a distributor without adequate documentation or markings to conclusively indicate the manufacturer. According to the report, the only useful information was on the package, which provided, among other things, the part number, part name, and vendor.

The FAA investigation revealed that:

- Additional information contained in the component manufacturer's manual showed that Part Number (P/N) 54322 was the equivalent of Miniature Precision Bearing (MPB) P/N F860.
- The package did bear a label from MPB, which is the only source for this particular part; however, there was no evidence of direct-ship authority.
- FAA was able to conclude that there was reasonable evidence to show that the part was of known origin. FAA found that, based on the documented evidence and the experience of the repair station, the part in question was used properly by the repair station. This is another example of the PMA issue, the subject of extensive industry/FAA analysis.

2. Pin—Part Number 768128
REF: OIG Report, page 13

The OIG report states that, at a foreign repair station, the auditors found pins that are used on a Pratt & Whitney engine and for which there was no part documentation from the FAA Production Approval Holder (PAH). Apparently, the auditors were particularly concerned because this type of part had been counterfeited previously, and, according to the auditors, the U.S. distributor that supplied the parts in question had sold some of the counterfeit parts. The auditors further stated that the parts were repackaged by the repair station in a clear plastic bag with a repair station label that indicated the part name and number, and that the part number and manufacturer's symbol were hand etched on the part. These observations apparently reinforced the auditors' concern that the parts might be counterfeit.

FAA was unable to investigate the specific example contained in the OIG report because the report did not include any identification of the repair station at which the parts were found. However, FAA did visit an FAA-certificated repair station in Miami, which also had the same pins in stock. The results of the FAA investigation, based principally on this repair station visit and contact with Pratt & Whitney, revealed the following:

- Repackaging parts such as the pins in question in a repair station bag with labels as described by the OIG auditors is a common industry practice.

- For these parts and many other small parts, it is not uncommon to find the part number and the manufacturer's symbol hand etched. All three parts of this type (P/N 768128) found at the Miami repair station were from known sources with proper supporting documentation. Each part also had a hand etched part number and manufacturer's symbol.

- Based on the information provided by the OIG auditors, there is no reason to believe the parts in question are not approved.

3. Standard Parts
REF: OIG Report, pages 13 & 14

The OIG report states that none of the three repair stations visited could provide documentation evidencing that purchased industry-standard items conformed to established industry or U.S. specifications. The report further states that, in the auditors' opinion, compliance with the regulation cannot be conclusively established without documentation evidencing the manufacturing origin of standard parts. Examples of the parts involved are provided in OIG exhibit D.

The issue of how standard parts are identified and used in aviation applications is discussed generically in Section II-B of this report. Each example found in the OIG exhibit has a part number that is typical of a standard part. The applicable source of the standard is incorporated in the first two or three letters of the part number (e.g., AN or NAS). Consequently, each part in the exhibit illustrates exactly the same issues.

B. Direct Shipping
The OIG report states that suppliers are producing parts and selling them directly to owners, operators, and repair stations without FAA production approval or direct shipment authority (page 14). This problem is illustrated with an example of a repair station that purchased seals

(P/N S12095213-5), a cap (P/N S12604-113), and pistons (P/N S30071-325).

REF: OIG Report, pages 14 & 15

FAA agrees that there are some problems associated with direct shipment by suppliers. However, these problems have not been shown to have had any adverse impact on safety, and FAA analysis of specific cases shows that the parts are of high quality and meet FAA-approved standards. Nevertheless, certain approval issues need to be addressed. The resolution of this issue is a part of FAA's overall effort to correct deficiencies in the PMA program. In its response to the OIG survey report on the PMA process, FAA described the steps underway and planned actions that will address this and other PMA issues. OIG has stated that FAA's planned actions are "reasonable."

C. Production Approval

The OIG report indicates that OIG found two types of parts that were produced by companies that did not have any FAA production approval (page 15). An example is given.

Bearings (P/N 205FF1116G-18)
REF: OIG Report, page 15

The OIG report states that 50 of the bearings intended for use in a generator were produced by a U.S. manufacturer who did not have FAA production authority. The packaging indicated that the part was interchangeable with the part found in the generator manufacturer's maintenance manual; however, the generator manufacturer stated that the substitute part was not acceptable.

(NOTE: See the general discussion related to why the manufacturer may not always provide complete information about approved parts substitutions, Section II-D of this report.)

The FAA investigation revealed the following:

- The manufacturer of the bearing produces its own P/N 205FF1116G-18. If the generator manufacturer orders its own P/N 1110271-5 bearing, the bearing manufacturer relabels the P/N 205FF1116G-18 bearing and ships it. The two bearings are physically identical. As long as the generator manufacturer accepts responsibility for the quality of the bearing, this process is approved.
- The bearing manufacturer's part is not produced under an FAA-approved production system. The generator manufacturer's part number bearing is included under a production approval.
- The bearing manufacturer should have its own PMA to produce this bearing for any direct shipment.
- The FAA has no knowledge of any safety-related problems or trends associated with the use of this bearing. However, there is a problem with PMA certification as for other "direct ship" cases. As discussed above, all of the PMA issues are being addressed, and OIG has found that the FAA actions to resolve those issues are "reasonable."

D. Counterfeit

The OIG auditors found one type of part (10 parts) that they determined was a counterfeit as defined by AC 21-29A (page 15).

Pratt & Whitney Bushings (P/N 768132B)
REF: OIG Report, pages 15 & 16

At a foreign repair station, the OIG auditors found seven bushings that they believed matched the profile of a counterfeit part. A total of 10 such bushings had been purchased from a distributor. The repair station took prompt action to quarantine the seven bushings in stock and to ensure that the remaining three would be removed from the engines in which they were installed.

FAA investigated this case and found:

- As indicated by the OIG report, this is not a new problem. In September 1991, DOT sent suspected counterfeit bushings to Pratt & Whitney for evaluation, and in December 1991, FAA began investigating the problem in Suspected Unapproved Parts Case 91-48. Both FAA, through Flight Standards Airworthiness Bulletin 91-10, and Pratt & Whitney, through a Pratt & Whitney All Operators Letter dated October 28, 1991, have taken steps to alert the repair industry and others to the existence of these counterfeit parts.
- The potential safety hazard for this particular part is minimal because of its use in a non-critical area. The Pratt & Whitney notification letter states that "P & W does not consider engines operating with these bushings to be a safety concern." If the hazard were greater, FAA would have taken stronger action.
- FAA has no knowledge of any criminal action taken against the supplier of these counterfeit parts.

E. Outdated Manuals

The OIG report states that five repair stations that performed repairs used outdated manufacturers' maintenance manuals (page 16).

1. General Discussion—Table of Components

REF: OIG Report, page 17

The OIG report includes a table of 11 components for which the auditors determined that outdated maintenance manuals were used to perform repairs.

The determination of whether a repair station has used information that is not current must be made for each individual repair and for the specific information that was used for that repair. Use of a manual into which the latest revision has not been incorporated may not be in conflict with Federal Aviation Regulations requirements if the particular portion of the manual that was used for the repair is still current.

The limited information provided in the OIG report was not sufficient for FAA to determine if any maintenance action related to the components listed in the table was actually contrary to FAR requirements.

2. Actuator—P/N R1631M1
REF: OIG Report, page 18
The OIG report states that a repair manual that a domestic repair station used to repair an actuator was 7 years outdated. The auditors also determined that the repair station overhauled an additional actuator with the same part number during a 2-year period ending June 8, 1992.

The FAA found that:

- As recognized by OIG in its report, FAA had inspected this repair station in February 1992,

- Part of the repair station's response to the FAA notification was a commitment that "no unit will be released for service without a current manual."
- When the actuator in question was received by the repair station for warranty repair, the Chief Inspector placed the part in quarantine to await receipt of the most current manual. The Chief Inspector of the repair station told the FAA that

she had stated to the OIG auditors that the outdated manual had not been used to make repairs.

F. Use of Parts Not Found in the Manufacturer's Manual

REF: OIG Report, pages 16 & 17, and Exhibit E

OIG reports that 17 of the 88 repairs audited used 27 different types of parts not listed in the manufacturers' maintenance manuals. Those 17 cases are listed in Exhibit E of the OIG report, and 3 examples are discussed in detail in the body of the report. (Those three examples also are included in OIG Exhibit E.)

FAA investigated each of the 17 cases. The results of each of those investigations is summarized below in the order in which the cases were presented in Exhibit E. (Number 24 below is the example found on page 15 of the OIG report and numbers 5 and 22 are the two examples discussed on page 19 of the OIG report.)

For the following cases, it is important to note that manufacturers' manuals are not the only source of information on approved replacement parts. (Sections II and IV further discuss this general issue.)

1. Constant Speed Drive (P/N 699647C)
   Idler Gear (P/N 709951)

   OIG Finding: The P/N 709951 idler gear was identified on an invoice of parts ordered against Work Order No. 49842 for a certain type (P/N 699647C) of constant speed drive (CSD). The auditors concluded that a part not in the CSD manufacturer's manual was installed in the CSD.

FAA Investigation Results: This idler gear is not used in this type of CSD and physically could not be installed. An invoice is not necessarily a good indicator of actual maintenance performed. In this case, an additional part (the idler gear) was added to the invoice at the request of the customer, even though it was not related to Work Order No. 49842.

2. Hydraulic Valve Actuator (P/N 107796A128)
   Seal (MS9021-027)

   OIG Finding: A repair station substituted a P/N MS9021-027 seal for an P/N 16606A73-103 seal during the repair of the valve actuator. The auditors noted that the seal that was used was of a different material composition than the seal in the manufacturer's manual.

   FAA Investigation Results: The seal that was used was the recommended seal before a manufacturer's modification. In the component manufacturer's maintenance manual (Figure 1101), both P/N MS9021-027 and P/N 16606A73-103 are listed as approved parts for the P/N 107796A128 actuator. (The repair station's customer, an FAR Part 121 air carrier, has determined that the substitutions are acceptable.)

3. Hydraulic Valve Actuator (P/N 107796A128)
   O-Ring (NAS1611-015)

   OIG Finding: The O-ring was not listed in the manual and has a different hardness than the part listed by the component manufacturer.

   FAA Investigation Results: During the repair, an O-Ring (P/N 16606A73-91) was replaced with O-Ring

NAS1611-015. The component manufacturer stated that there was no danger or installation problem associated with the substitution and also noted that both O-rings were made of ethylene propylene-80 shore. This substitution is consistent with 14 CFR 43.13, which requires the use of materials that will ensure that the condition of the component after maintenance will be at least equal to its original condition. (The repair station's customer, using its authority under 14 CFR Part 121, has determined that the part substitution is acceptable.)

4. Tail Skid Actuator (P/N R1549-1)
Bearing (P/N SR45PPDK15/235)

OIG Finding: The OIG report indicates that bearing P/N SR45PPDK15/235 was used for a repair, but was not in the manual. OIG further indicates that this bearing did not have the same radial clearance as the bearing that was found in the manual (P/N 4ZZRA1P25LG49P).

FAA Investigation Results: The bearing that was used is an approved bearing; however, it was superseded by the bearing found in the current manual. The manufacturer of both bearings stated that the bearings have the same ball complement, load rating, and radial dimensions. The P/N does not appear on the bearing, but only in related paperwork. The manufacturer of the bearing changed its part numbering scheme in 1985; consequently, if a repair station ordered this bearing under the old part number after 1985, they would have received the new part number bearing.

5. Tail Skid Actuator (P/N R1549-1)
O-Ring (NAS 1611-022)

OIG Finding: The O-Ring was not listed in the manual and has a different material composition than the part listed by the component manufacturer. The OIG report indicates that the O-Ring is used for sealing hydraulic fluids; the actuator manufacturer confirmed and the O-Ring supplier agreed that the substitute part was not equivalent in that it is made of ethylene propylene and the part specified in the manual is made of butyl; and both parties contacted by the auditors also agreed that the ethylene propylene O-Ring was not compatible with fluids normally used in aircraft.

FAA Investigation Results: FAA determined that the application of this seal is not hydraulic. It is used as an environmental seal between an electrical connector and a housing. The seal that was used is more effective in sealing against water, which is common in the area where the seal is used in the subject application.

The OIG report did not indicate which repair station was involved in this case. Consequently, FAA could not investigate the specific circumstances; however, a visit to a repair station in Miami where similar work is done revealed the fact that its customer, a large U.S. air carrier, has authorized the repair station to substitute the newer seal. (The repair station is required to follow the customer's program and an air carrier is authorized through its engineering function to make such changes to its maintenance program.)

Even without a customer order to make the substitution, the regulations (14 CFR 43.13) permit the use of materials at least equal to the ones that are to be replaced. In this case, the materials that were used are superior for the given application.

6. Generator (P/N 28B263-13A)
Seal (P/N MS28775-016)

OIG Finding: The OIG report indicates that the part used is not in the current manufacturer's manual and that the material composition of the part that is in the manual is different.

FAA Investigation Results: FAA found that the generator manufacturer's part number for the seal in question (P/N 1531758) has a fluorocarbon elastomer material composition and a heat range of -15° F to +400° F. The MS28775-016 seal is made of nitrile buna and has a heat range of -65° F to +275° F. Both seals are resistant to petroleum and synthetic base fluids.

The two seals are not equivalent, and MS28775-016 should not be substituted unless specifically approved for a particular application. Based on the facts presented in the OIG report, the repair station used an incorrect (but not unapproved) replacement part. This case appears to involve a maintenance procedure inconsistent with existing Federal Aviation Regulations requirements, and FAA would normally pursue enforcement action in such a case. FAA could not investigate this specific case further without knowing the location where the apparent problem was found.

7. Auxiliary Power Unit (P/N 380678-2-2)
Bolt (MS9489-24)

OIG Finding: The OIG report indicated that the bolt was used to repair an auxiliary power unit (APU) and that the length of the bolt was not consistent with the part specified in the manual.

FAA Investigation Results: The repair station installed a bolt (P/N MS9489-24) in place of the bolt (P/N 9489-25) specified in the manual. These are both standard parts and are identical except for length. The P/N 9489-25 bolt is 0.063 inches longer.

The APU manufacturer's overhaul manual (Garrett, GRCP85-95CK) and industry standard practice as described in AC 43.13-1A require that the bolt have a minimum thread protrusion. In this application, the installed bolt (the shorter one) did meet this minimum length criteria. Substituting for one standard part with another that meets requirements is a common industry practice that is consistent with the Federal Aviation Regulations.

8. Generator (P/N 30E02-27B)
Ring Retainer (P/N 10-92815-37)

OIG Finding: The OIG report indicates that a retainer ring that was not included in the manual, and the dimensions of which were incorrect, was used in the repair of a generator.

FAA Investigation Results: The incorrect retainer ring was installed by a repair station. The retainer ring that was installed is an approved part, but is not appropriate for the application in which it was used.

The repair station agreed that a maintenance error was made and recalled the generator before it was installed on an aircraft. FAA has taken enforcement action against this repair station.

9. Starter (P/N 3605812-21-1)
Brush (P/N 516040-1)

OIG Finding: The OIG report indicates a part that is not in the component manufacturer's manual and that is not approved for the model starter was used.

FAA Investigation Results: The FAA investigation revealed that the manufacturer of the starter had issued a Service Bulletin (No. 48364-49-2123) that introduced a new brush as an improved part. The new brush was installed by the repair station. The P/N 48312 brush listed in the component manufacturer's manual is no longer available.

10. and 11. Transmission (P/N 65-26614-25)
Bolt (P/N NAS1105-27W)
Bearing (P/N 9305K)

OIG Finding: The OIG report indicates that both the bolt and the bearing that were used are not on the manufacturer's approved list.

FAA Investigation Results: These concerns were raised by OIG in 1992. The transmission is manufactured by Boeing. The Boeing Commercial Jet Overhaul Manual, dated May 1985 (Chapter 27-54-04, page 1106, and Chapter 27-55-03, page 12) lists approved replacement parts for each of these items. The parts used by the repair station are approved according to that manual.

The repair station provided OIG a telex, dated October 1992, that explained the basis for the approval of the parts that were used. That information should have alleviated the OIG concern. FAA had concluded in 1992 that the parts used are approved for the application and the repair station acted in a manner consistent with all requirements. There is no new information that would cause FAA to change that conclusion.

12. Gear Box (P/N 6523467-5)
    Bearing (NAS1197-716)

    OIG Finding: The information in the OIG report indicates that the bearing was not on the manufacturer's list.

    FAA Investigation Results: The gear box is manufactured by Boeing. Part Number NAS1197-716, listed as a washer (not a bearing) in the Boeing Commercial Jet Overhaul manual, is an approved part.

13. Gear Box (P/N 6523467-5)
    Bolt (NAS6604-14)

    OIG Finding: The information in the OIG report indicates that the bolt was not on the manufacturer's approved list.

    FAA Investigation Results: The Boeing Commercial Jet Overhaul manual indicates that the replacement part is P/N BACB30NE4-14, a Boeing part. However, a telex from Boeing indicates that an NAS6604-14 bolt (the one used by the repair station) is an approved substitute for the Boeing part.

14. Gear Box (P/N 6523467-5)
Nut (NAS679A4)

OIG Finding: The information in the OIG report indicates that the nut was not on the manufacturer's approved list.

FAA Investigation Results: The manufacturer's manual (the Boeing Commercial Jet Overhaul Manual) lists Boeing P/N BACN10JC4 as an approved nut for the subject application. However, that manual also specifically states that this Boeing part has been replaced by the NAS679A4 nut.

NOTE: The three parts associated with the Boeing gearbox (Items 12, 13, and 14 above) are all approved parts, and the manufacturer's documents to support that conclusion have been identified. This documentation was presented to the OIG auditors during their visit to the repair station.

15. and 16. Standby Power Supply (P/N PS823)
Battery Pack (P/N AB1475)
Battery Pack (P/N AB1476)

OIG Finding: The information in the OIG report indicates that the battery packs were not on the manufacturer's approved list.

FAA Investigation Results: FAA found that the repair station was installing two types of battery packs (part numbers AB1475 and AB1476), neither of which is included in the power supply manufacturer's manual. The manufacturer stated in service letter SL-84B, dated December 5, 1991, that "As a general rule, battery packs of different part numbers may be interchanged or mixed within a PS-823 dual-pack supply. However, at no time may cells of unlike part numbers or manufacturers be mixed within an individual battery pack."

17. and 18. Standby Power Supply (P/N PS823)
Machine Screw (MS24693S3)
Machine Screw (MS35206-214)

OIG Finding: The information in the OIG report indicates that the machine screws were not listed in the current manufacturer's maintenance manual and that the physical characteristics were different from the corresponding part that was found in the manual.

FAA Investigation Results: Manufacturers' part numbers for machine screws can be cross referenced to equivalent standard parts bearing Army Navy (AN) or Military Standard (MS) numbers. Although the physical characteristics may vary, the applications in which such basic fasteners are normally used accommodate some variation in characteristics. These typical applications also are not safety critical.

Repair station personnel are trained and experienced to judge whether such simple part substitutions are consistent with the intent of 14 CFR 43.13, which permits the substitution of parts at least equal to those being replaced.

19. Ignition Unit (P/N C44TS/4)
Tab Washer (P/N N78100-3)

OIG Finding: The information in the OIG report indicates that the washer was not on the manufacturer's approved list.

FAA Investigation Results: The manufacturer's manual lists P/N CX4859 as the part to be used for this application. Based on a discussion with the component manufacturer, FAA learned that both the listed washer and the washer that was used (P/N N78100-3) are designed for the same purpose. There are minor differences, but either could be used without affecting the airworthiness of the component. This minor change is consistent with the provisions of 14 CFR 43.13.

20. AC Generator (P/N BA02801-1)
Bearing (P/N 104FFT5G-33)

OIG Finding: The information in the OIG report indicates that the bearing is not approved for this model of the AC generator.

FAA Investigation Results: The component manufacturer's part number for the bearing is 001687-12. The bearing manufacturer's part number, 104FFT5G-33, is physically identical. If the repair station purchases the bearing directly from the bearing manufacturer, the bearing manufacturer should have a PMA for the bearing. FAA recognizes that there is some confusion over this direct-ship issue. This is another example of one of the issues associated with PMAs, which is discussed in detail in the FAA response to the OIG report on PMA.

21. AC Generator (P/N BA02801-1)
Split Cotter Pin (P/N SP90-A7)

OIG Finding: The information in the OIG report indicates that the cotter pin was not on the manufacturer's approved list and was of a different length than the cotter pin on the list.

FAA Response: OIG's concern was that the cotter pin was of a different length. For several practical reasons, an aviation technician will sometimes use a cotter pin of correct diameter and material, but longer than specified. The normal practice when installing a cotter pin is to cut it to the proper length. This is a procedure that trained technicians are very familiar with and that is explained in the AC 65-9A, Airframe and Powerplant Mechanics General Handbook. The AC states that "the cotter pin should fit neatly into the hole with very little side play. The following general rules apply to cotter pin safetying. The prong bent over the bolt end should not extend beyond the bolt diameter. (Cut it off if necessary.) The prong bent down should not rest against the surface of the washer. (Again, cut it off if necessary.)."

22. Vertical Gyro (P/N 2587335-21)
Bearing (P/N SR156WX1K25VO-11)

OIG Finding: The information in the OIG report indicates that the bearing was not on the manufacturer's approved list and that its finish differed from that of the bearing on the list.

FAA Investigation Results: There are two bearings that are the same except for the finish. The P/N SR156WX1K25VO-11 bearing, if it has a diamond lap finish, is redesignated as SR156SWX31K25VO-11. However, according to the vertical gyro manufacturer, the part number on the bearing ring could still be P/N SR156WX1K25VO-11.

The two bearings are not identical and should not be considered interchangeable; however, the difference in the subject application would affect bearing life, not safety. FAA could not determine from the OIG information whether the bearing used was incorrect or if the bearing information on the ring led the auditors to draw the wrong conclusion.

23. AC Generator (P/N 28B141-51A)
Nut (AN365-524A)

OIG Finding: The information in the OIG report indicates that the nut was not on the manufacturer's approved list.

FAA Investigation Results: The nut for this application, as listed in the generator manufacturer's manual, is P/N 890625-524. It is a common, self-locking, hex head, steel cadmium plated 5/16-24 nut. The part used (AN365-524A) is an industry standard, self-locking, hex head, steel cadmium plated 5/16-24 nut.

This type of part substitution is a normal procedure permitted under 14 CFR 43.13. Aviation technician training and certification and FAA guidance ensure that such a process does not adversely impact safety.

24. AC Generator (P/N 28B141-51A)
Bearing (P/N 205FF1116G-18)

This case is used as a detailed example in the OIG report (page 15). The specifics of the case and the results of the FAA investigation have been presented in Section II-C.

25. AC Generator (P/N 28B141-51A)
Rivet (MS20613-5C7)

OIG Finding: The information in the OIG report indicates that the rivet was not on the manufacturer's approved list.

FAA Investigation Results: The part number of the rivet listed by the generator manufacturer is AN125575. This rivet is a mild steel fastener with a 3/32-inch diameter and a 1/2-inch length. The part that was used (MS20613-5C7) is a stainless steel fastener with a 5/32-inch diameter and a 1/2-inch length and is stronger.

The OIG report did not indicate why the technician may have chosen a larger diameter or stronger rivet; however, there may have been a valid reason. This type of part substitution is not only consistent with 14 CFR 43.13, it also may be an example of a technician using his or her experience and training to improve the quality of a product, as envisioned by the regulations.

26. Transmitter (P/N 3567313-0001)
Bearing (P/N SR1-5K3VLCO-11)

OIG Finding: The OIG report indicates that the bearing was not on the manufacturer's approved list.

FAA Investigation Results: The bearing (P/N SR1-5K3VLCO-11) is not listed on the current manufacturer's approved list. The bearing manufacturer changed its part numbering system in 1985. The bearing that was used by the repair station is identical to P/N SR1-SWK24, which is listed in the manual. (Note: This concern raised by the auditors is the result of the same part numbering change that affected case number 4.)

27. Starter Generator (BC0107-2C)
Brush (P/N 1530453)

OIG Finding: The information in the OIG report indicates that the brush was not on the manufacturer's approved list.

FAA Investigation Results: FAA determined, after contact with the manufacturer of the starter generator, that the part number listed in the manufacturer's overhaul manual (dated January 1973) was incorrect. The manufacturer's drawing for that part indicates that the part used is identical to the one listed in the overhaul manual. These identical parts have been in use for 25 years and that fact was probably known to the repair station.

In summary, of the 27 specific examples discussed above, the FAA found that:

- Twelve were cases in which additional documents were available to show that the part used was an approved part.
- Nine were examples of a part substitution permitted under 14 CFR 43.13, and seven of those involved standard parts.
- Two were cases of maintenance errors where the repair station used an approved part, but used the wrong part for the application.
- Two are examples of a direct shipment of a part without the proper authorization (an issue addressed as part of the ongoing PMA program)
- One was a case in which the OIG concluded that an inappropriate part was used because it appeared on an invoice; the part was not actually used
- One case probably was an example of a maintenance error; however, OIG provided information insufficient to reach a definite conclusion.

4.0 OIG RECOMMENDATIONS AND FAA RESPONSES

The OIG recommendations fall into four basic areas:

1. Regulations and technical guidance for aircraft parts approval, part substitutions, and subcontracted repairs;
2. FAA surveillance program for inspection requirements and quality of surveillance;
3. Regulation and surveillance of aircraft parts distributors or brokers; and
4. Availability of information.

This section responds to the OIG's March 7, 1994, request that FAA provide additional information or reconsider its responses to certain recommendations.

Some of the recommendations were divided into specific sub-recommendations, lettered (a), (b), and so forth. Each of these was treated as a separate recommendation. Thus, while the recommendations are numbered 1 through 12, there are actually a total of 16 recommendations. For the convenience of the reader, this document includes a summary of the initial FAA response to the recommendation, a summary of OIG's request for additional information or reconsideration, and the current FAA response.

Recommendation 1: Continue plans to revise AC 20-62D and ensure that the revision is published as planned and includes standard certification requirements for the aviation industry that clearly identify the part number, manufacturing source, and compliance with the FAR for all replacement parts used to repair aircraft or aircraft components.

FAA's February 17 response: Concur. Draft AC 20-62D, Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts, was distributed to all FAA Flight Standards and Aircraft Certification offices for review.

The final draft is currently in the Chief Counsel's office for review, and FAA expects to issue the AC in fiscal year 1995.

OIG March 7 final report: The corrective action is adequate.

FAA response: Although OIG considers this recommendation resolved based on the FAA's February 17, 1994, response, FAA wishes to provide further clarification regarding the scope of the AC. The AC will provide information and guidance for use in the determination of eligibility and traceability of aeronautical parts and materials for installation on type certificated products.

Recommendation 2: Continue plans to revise and reissue Part 21 of the Federal Aviation Regulations and ensure that the revised regulations require the legible marking of replacement parts produced by all production approval holders comparable to the marking requirements required for PMA-manufactured parts, and require all PAH's to provide evidence of FAA production approval and certification of compliance with the Federal Aviation Regulations.

FAA's February 17 response: Partially concur. The Aircraft Certification Service, through the FAA Aviation Rulemaking Advisory Committee (ARAC) Production Certification Modernization Working Group, is revising the production approval and marking requirements of Parts 21 and 45 of the Federal Aviation Regulations.

OIG March 7 final report: OIG requested additional information concerning the ARAC process, including clarification on whether ARAC or FAA has final approval of regulations proposed through the ARAC process.

FAA's current position: Partially concur. FAA has final approval of all revisions and amendments to the FAR. ARAC's role is to study regulatory issues at FAA's request and make recommendations to FAA. The objective of ARAC is to gain public input and involvement from interested members of the aviation community early in the rulemaking process, and thus speed the process by reducing substantive comments to published Notices of Proposed Rulemaking (NPRMs). In addition, the Office of Management and Budget and the Office of the Secretary of Transportation have looked favorably on rulemakings that are developed in consideration of input by affected parties.

The ARAC Production Certification Modernization Working Group is in the process of recommending FAR changes that would include:

- Combining the three different quality control systems into one system so that all products, parts, and appliances are produced under the requirements of one system;
- Establishing general procedural requirements, eligibility, and responsibilities applicable to one production approval; and
- Developing uniform marking requirements for products, parts, and appliances, including components, subassemblies, and spare parts.

Recommendation 3: Revise Part 43 of the Federal Aviation Regulations and provide technical guidance to clearly define acceptable part substitutions and allowable types of subcontracted repairs.

3(a): Require repair stations to have authorized officials evaluate the safety impact of all part substitutions prior to installation and document the justification for using alternate parts.

FAA's February 17 response: Nonconcur. The regulations cover methods for parts substitutions. Additional guidance will be provided in AC 20-62D.

OIG March 7 final report: OIG requested that FAA reconsider its nonconcurrence. OIG stated that it found confusion among repair station personnel and FAA personnel on part substitution requirements of FAR Part 43, principally regarding what constitutes a minor or major repair. OIG stated that the vagueness of the minor repair definition may lead a repair station to make a part substitution that may not be compatible with the original design. Therefore, OIG recommended that repair stations be required to consult a manufacturer prior to part substitution and to document the consultation.

FAA's current position: Nonconcur. The OIG audit report stated that manufacturers consulted by OIG believe that repair stations should not use substitute parts unless those parts are approved and tested by the manufacturer. It must be recognized that manufacturers responding to such inquiries have commercial and technical considerations as the basis for maintaining that they should be the final authority regarding substitute parts. However, several methods are commonly used to provide equivalent and approved parts from other sources. These sources include parts produced pursuant to 14 CFR 21.303 under a PMA; parts produced under a type or production certificate; parts produced by an owner or operator for maintaining or altering his own product; parts produced under an FAA Technical Standard Order; and standard parts conforming to established industry or U.S. specifications.

According to 14 CFR 21.305, parts may be approved in any other manner approved by the Administrator. Approval for parts under these regulations requires close FAA scrutiny. Similarly, a major change in type design (not great enough to require a new application for a type certificate) may be accomplished pursuant to 14 CFR Part 21, Subpart E-Supplemental Type Certificates. Approved parts produced by entities other than the original manufacturer are produced within a closely regulated framework, and often meet a market demand no longer addressed by the original manufacturer.

Further, the OIG report linked the parts substitution question with the unrelated question of the distinction between major and minor repairs, and the data necessary for accomplishing major repairs.

Section 43.13 of the Federal Aviation Regulations addresses part substitutions. That regulation states that materials used in maintenance or alteration shall be of such a quality that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance is at least equal to the original or properly altered condition. Certificated air carriers may comply with this requirement on the basis of their maintenance manual. In either of these cases, an individual or organization accomplishing maintenance has some discretion about which parts to use, as long as the intent of 14 CFR 43.13 is met, and within the framework of aeronautical parts established by 14 CFR Part 21, as applicable.

3(b): Clarify which repair functions are allowed to be subcontracted to repair stations not approved by the FAA.

FAA's February 17 response: Concur. FAA is rewriting FAA Order 8610.3, Certification of Repair Station for Class and Limited Ratings, Including the Privileges of Those Ratings, to clarify applications of contracting out.

OIG March 7 final report: The corrective action is adequate. FAA concurred, and OIG accepted the FAA's response.

Recommendation 4: Continue the development of a statistically based management feedback system. Ensure that the system includes the development of information on the volume, type, technical sophistication, safety sensitivity, and criticality of repairs made by each repair station and on the extent and significance of problems found at repair stations in order to target major or risk sensitive stations for in-depth FAA surveillance.

4(a): Require domestic repair stations to report activity levels each year similar to the requirement for foreign repair stations.

FAA's February 17 response: Nonconcur. Such a change in the regulation at this time would create an additional burden on resources and would not enhance safety.

OIG March 7 final report: OIG requested that FAA reconsider its previous nonconcurrence. OIG stated that it realized that such activity-reporting is contrary to current FAA policy, but stated that the change would enhance FAA's use of resources.

FAA's current position: Nonconcur. The activity reports currently submitted by foreign repair stations are not intended to provide a basis for inspections, but are required by 14 CFR Part 145 to establish a need for certificating the repair station. FAA agrees that more sophisticated analysis of potential problem areas among repair stations would enhance the allocation of resources and improve FAA's repair station surveillance. However, repair station activity levels are not a particularly good indicator of where resources should be directed. Nevertheless, FAA is developing the Safety Performance Analysis System (SPAS) to address this issue. More discussion of SPAS is presented under recommendation 4(c).

4(b): Redefine repair station ratings to more clearly identify what types of repairs each repair station is approved to make.

FAA's February 17 response: Concur. The proposed revision to Part 145 of the Federal Aviation Regulations would broaden the repair station rating system.

OIG March 7 final report: OIG requested additional information regarding the FAA's proposed changes to repair station ratings in 14 CFR Part 145, to determine whether it could resolve the recommendation.

FAA response: Concur. The proposed revision to 14 CFR Part 145 is still in rough draft form. FAA will forward a copy as soon as the NPRM is finalized. However, the following is a summary of the relevant changes currently under consideration in the proposal:

The rating system proposed in the FAR Part 145 revision consists of seven aircraft class ratings, compared to the current four airframe class ratings; six powerplant class ratings, compared to the current three powerplant class ratings; three computer class ratings, which would be entirely new; and four accessory class ratings, compared to the current three. The limited ratings would be reduced from 13 to 9. Under the proposed rule, anyone making application must list by make and model the equipment to be overhauled or repaired. Under the current system, only applicants for propeller and accessory ratings are required to supply this list. This is referred to as a capabilities list, and it becomes an appendix to the inspections procedures manual. Under the proposed revision to part 145, the repair station would be required to keep this list current. As a repair station seeks approval for certification to overhaul or repair additional items, the items would be added to the list and accepted by the principal maintenance inspector (PMI). The requirement for the capabilities list would be referred to in the operations specifications. This proposed revision to Part 145 is being coordinated with other countries as part of FAA's effort to harmonize regulatory standards.

4(c): Identify recurring problems and high-risk areas by analyzing inspection results.

FAA's February 17 response: Concur. During fiscal year 1991, Flight Standards Service decided to proceed with the development of SPAS, an analytical tool for monitoring and evaluating a certificate holder's compliance performance. SPAS takes information from existing databases, including the Program Tracking and Reporting Subsystem (PTRS) and the Vital Information Subsystem (VIS), correlates information, and sets warning levels to alert inspectors of trends concerning safety issues.

OIG March 7 final report: OIG requested additional information on SPAS to evaluate the FAA's action in response to the recommendation. OIG requested information on how SPAS works, how often and to what extent it will be used, and the outcome FAA expects from the analysis. OIG also requested information on how information from the PTRS and VIS is verified before being used in SPAS, because inaccuracies in PTRS and VIS have been previously reported.

FAA response: Concur. SPAS is under development using Research, Engineering, and Development (RE&D) funds. A prototype for air carrier information is operating in approximately 20 test locations. Under the program, a carrier's performance is measured based on the carrier's compliance with the Federal Aviation Regulations, according to a series of performance indicators developed by experienced inspectors. The performance indicators measure the carrier's performance in relation to its own past performance or the performance of others in its peer group. FAA inspectors enter information into databases after surveillance, and SPAS provides a profile of the operator based on the indicators.

Performance indicators currently are under development for repair stations. Based on the SPAS analysis, an inspector will be able to:

- Plan the annual work program;
- Prioritize the planned work on a quarterly basis; and
- Regularly define areas of discretionary surveillance based on timely information.

When SPAS is completed, it will be possible to query the system as often as every 24 hours. Currently, the information is updated semi-monthly.

Contractors are verifying PTRS and VIS data prior to its use for SPAS analysis. Currently, about 98 percent of the information is accepted. In addition, contractors are devising a data quality assessment tool to better enable FAA to assess any problems in the SPAS data. SPAS is a user-friendly system that enables inspectors to better target surveillance priorities and more easily identify when resources can be re-deployed to other activities.

SPAS I will be released for principal inspectors of operators under 14 CFR Part 121 and larger operators under Part 135 in the summer of 1995, using the current architecture. SPAS II will be released in 1997, and will be available for use throughout the Flight Standards Service. SPAS II will have full functionality, based on user definition, and improved architecture and infrastructure.

4(d): Develop in-house training courses for aviation safety inspectors concerning the areas most at risk and the most efficient and effective inspection techniques to use.

FAA's February 17 response: Concur. The FAA Academy is developing a 64-hour course to broaden the scope of material currently covered in courses on certification of repair stations and surveillance of air agencies.

OIG March 7 final report: The corrective action is adequate.

***Recommendation 5*:** Develop standard performance measures that represent the success or failure of a repair station's operation.

FAA's February 17 response: **Nonconcur. All repair stations must maintain minimum standards. Those standards are established in 14 CFR Parts 43 and 145, and guidance is published in FAA Order 8300.10, Airworthiness Inspector's Handbook.**

OIG March 7 final report: OIG requested that FAA reconsider its response and implement corrective actions. The intent of the recommendation is to provide a mechanism for measuring the quality of a repair station's final work product. OIG stated that, because the FAA surveillance function is process driven, the quality of a repair station's work product is not directly monitored by FAA. OIG also stated that performance standards or benchmarks for repair stations' work products would provide more reasonable assurance of consistent quality repairs.

FAA's current position: Nonconcur. The current surveillance system measures a repair station's performance through a combination of techniques, including a review of the process, procedures, and product. Inspector surveillance guidelines are set forth in FAA Order 8300.10, Airworthiness Inspector's Handbook.

During the certification process, the repair station is required to submit an inspection procedures manual that explains its inspection process. This process must establish the quality of the repair station's product. Part 145 of the FAR requires each repair station to have an inspection system designed to ensure the continued integrity of the work performed and the quality of the product repaired or altered. Surveillance of this program is required in accordance with the National Program Guidelines (NPG). Each PMI is required to conduct a minimum of one inspection per repair station annually. After the surveillance, the PMI is required to document the inspection and all findings in accordance with the PTRS.

Risk assessment for repair stations is one indicator included in SPAS. Although benchmarks will not be set, changes in trends will be brought to the inspectors' attention. In addition, a proposed revision to Part 145 would require repair stations to have a quality assurance system for internal oversight.

***Recommendation 6*:** Require independent testing, on a statistical basis, of components and products repaired by repair stations to evaluate the adequacy of work performed.

FAA's February 17 response: Nonconcur. Inadequacies in work performed are detected by analysis of data from existing systems, such as air carrier reliability programs, malfunction and defect reports, and mechanical reliability reports.

OIG March 7 final report: OIG requested that FAA reconsider its nonconcurrence. OIG advocates a statistically-based testing methodology concentrating on flight critical items. OIG states that such a system would require additional resources, but not a massive resource-intensive effort. OIG states that air carrier reliability reports provide a measure of performance for all components that are installed and fail in air carrier service, but that this system does not monitor repair station work products worldwide. OIG states that the FAA's Service Difficulty Reporting Program also fails to provide reliable independent monitoring of repair station products.

FAA's current position: Nonconcur. The FAA is a regulatory agency that does not independently test products, parts, or appliances for the purposes of evaluating repair station inspection systems. Part 145 of the Federal Aviation Regulations requires each repair station to establish an inspection system that ensures the quality of its products. FAA's role is to ensure that the repair station's procedures comply with the Federal Aviation Regulations.

Neither FAA nor industry has ever identified a safety-related problem that would have been eliminated by independent testing of repair station products. The audit provided no evidence of failure in the quality control process used by repair stations. The current regulatory requirements, coupled with the FAA's surveillance, provide assurance that a repair station's product meets established requirements. No benefit to industry, the public, or FAA that would justify the cost of an independent testing program has been demonstrated.

Recommendation 7: Develop a statistical approach to the surveillance process, such as standard requirements for aviation safety inspectors to review a certain number of work orders, manufacturers' maintenance manuals, and the traceability of parts used in repair.

FAA's February 17 response: Nonconcur. Statistical sampling procedures for repair stations would constitute a significant departure from present procedures without any demonstrated safety improvement.

OIG March 7 final report: OIG requested that FAA reconsider its nonconcurrence with this recommendation. OIG stated that current surveillance procedures focus on the repair process and do not require minimum testing of data to confirm the existence of problems.

FAA's current position: Partially concur. The FAA's certificate management responsibilities and the use of established and effective tools such as the Regional Aviation Safety Inspection Program or a National Aviation Safety Inspection Program continue to ensure the highest level of air transportation safety in the world. Testing of parts for acceptability is accomplished during the certification process. The acceptability of a product is maintained by the use of inspection for airworthiness provided by the rules of 14 CFR Parts 121 and 43. The testing of overhauled and repaired products beyond that required by the Federal Aviation Regulations would have no safety benefit.

FAA is currently developing procedures for internal evaluation for repair stations, similar to the internal evaluation and voluntary disclosure procedures that have been successful with the air carrier industry. This will supplement normal surveillance, and encourage repair stations to continuously evaluate their operations.

Recommendation 8: Require aviation safety inspectors to document tests performed during each surveillance inspection and the safety implications of any deficiencies found.

FAA's February 17 response: Concur. FAA requires aviation safety inspectors to document tests performed during each surveillance inspection, and the safety implications of any deficiencies found. The level of detail recorded during surveillance inspections recently has been increased.

OIG March 7 final report: OIG requested additional information on how the information recorded during surveillance inspections has been increased, and when this change occurred. OIG requested a copy of any written guidance and an example of an actual inspection report prepared subsequent to this change.

FAA response: FAA increased surveillance and information obtained during inspections in fiscal year 1994 by identifying suspected unapproved parts (SUP) as an item to be emphasized. Notice 1800.132, Required National Flight Standards Program Work Functions, was issued on July 16, 1993, and will be reissued in fiscal year 1995. The notice provides guidance to Flight Standards Service field offices for the development and execution of the annual NPG. The required work functions ("R" items in the notice) identify specific inspections that need to be accomplished to ensure a balanced look at the entire aviation community. Guidance on SUP appears on page 14 of the notice.

Recommendation 9: Develop standard procedures to ensure that inspectors take appropriate follow-up actions when they find FAR violations and require standard documentation including the preparation of a SUP notification for safety-impacted parts repaired using outdated manuals, incorrect part substitutions, or unauthorized repair stations.

FAA's February 17 response: Nonconcur. Guidance for follow-up action and procedures is contained in FAA Orders 2150.3A, Compliance and Enforcement Program, and 8300.10, Airworthiness Inspector's Handbook. A work group has been formed to establish a process for FAA to refer violations to OIG.

OIG March 7 final report: OIG requested that FAA reconsider its nonconcurrence, and revised and clarified the recommendation to state that standard procedures are needed to ensure that inspectors perform required follow-up assessments for violations such as the use of parts and subcontractors not known to be FAA-approved.

FAA's current position: Nonconcur. As stated in the FAA response to the draft audit report, guidance for followup action and procedures is available to inspectors in FAA Order 2150.3A, Compliance and Enforcement Program, and Order 8300.10. An assessment of the impact of Federal Aviation Regulations violations and followup are required for all enforcement investigations. FAA has standard procedures for followup actions on any type of FAR violations.

FAA Order 2150.3A provides instructions for completing FAA Form 2150-5, Section D—Facts and Analysis. This section includes instructions for assessing the impact that a violation has on safety and other considerations. in addition, the process requires followup surveillance and requires the operator to put in place management practices to prevent a recurrence of the violation. If SUP notifications are received, a safety investigation and followup is initiated in accordance with FAA Order 8120.10, Suspected Unapproved Parts Program. Other directives that are used by FAA inspectors and that require investigations and followup are FAA Orders 8120.2, Production Approval and Surveillance Procedures, and 8300.10 (volume 3, chapter 97, page 97-4, provides instruction for scheduling and conducting followup inspections).

As discussed in Section II of this document, the Federal Aviation Regulations permit repair stations to use subcontractors that are not approved by FAA under certain conditions.

***Recommendation 10*:** Expand regulatory authority to require FAA surveillance of aircraft parts distributors or brokers, and to require distributors or brokers to maintain documentation for the traceability of all parts sold or traded and provide to purchasers with documentation supporting the FAA approval status and manufacturing origin of all such aircraft parts.

FAA's February 17 response: Partially concur. Such regulations would cause a major increase in costs without affecting safety. However, FAA and industry are developing an alternative approach of voluntary accreditation.

OIG March 7 final report: OIG requested that FAA reconsider its partial concurrence with the recommendation. OIG added that FAA should regulate parts brokers and distributors to provide a complete regulatory chain of custody and to establish accountability.

FAA's current position: Partially concur. Although FAA does not agree with the proposal to regulate distributors and brokers, FAA has a number of initiatives currently underway that will effectively control the use of SUP without resorting to the regulation of these entities.

These initiatives are aimed at addressing both the manufacturing and the maintenance aspects of the SUP issue from a safety point of view.

A key effort underway is proposed AC 20-AIR-D, relating to a planned voluntary accreditation program for distributors. The Aerospace Industry Regulation of Distributors (AIR-D) task force met with FAA to discuss its work on voluntary accreditation of parts distributors. This program could significantly dispel the perception that this segment of the industry is uncontrolled. FAA strongly endorsed the aerospace consensus position to the extent that regulation of the distributor quality assurance system is performed on the basis of voluntary industry oversight. Since that meeting, AIR-D has met on a number of occasions and is in the final stage of coordinating a proposal entitled "Distributor/Dealer Accreditation Program." FAA has been monitoring the progress of the AIR-D task force and is confident that this product will respond to the concerns that have been raised over brokers, distributors, and other individual agencies engaged in the sale of aeronautical replacement parts for installation on type-certificated products.

Other initiatives have increased public awareness of the SUP issue, encouraging persons in the industry to report cases to the FAA. Advisory Circular 21-29A, Detecting and Reporting Suspected Unapproved Parts, was issued on July 16, 1992. FAA Order 8120.10, Suspected Unapproved Parts Program, was issued on September 28, 1993.

Other activities have also heightened public awareness of the issue, including the approved parts seminar developed by FAA, which has educated and continues to educate the industry on the parts issue. A nationwide schedule for the seminar has been established for 1994 and 1995. In addition, FAA has produced a video program and other materials for public distribution to inform the community about how to report SUP and to promote better understanding of the Federal Aviation Regulations and FAA policies and procedures related to the approval, installation, and maintenance of FAA-approved parts.

New initiatives underway include a proposed revision of AC 20-62D, Eligibility, Quality, and Identification of Approved Aeronautical Replacement Parts. FAA plans to issue the AC in November 1994.

In addition, FAA continues to promote the concept of the Parts Approval Action Team, which was established through Notice N8110.44 (September 25, 1992). This program was implemented to address the problem of parts distributed to end-users by suppliers to production approval holders without proper authorization, which, even though contrary to FAA requirements, does not represent a safety issue. Phase I of what is envisioned as a three-phase program is the Parts Manufacturer Approval Under Evidence of Licensing Agreement, which prescribes procedures for issuing a PMA to persons who show "identicality" by providing evidence of licensing agreement with an FAA design approval holder.

FAA continues to view amending the Title 14 CFR to regulate distributors and brokers as impractical and, particularly in light of the initiatives highlighted above, unnecessary. Even defining the industry precisely is difficult. The term "distributor" is applied to a wide range of businesses. For example, a company with a large inventory of aircraft parts, warehouse operations for receiving and shipping, and a supporting nationwide supplier network is a distributor, as is a small operation with limited product lines serving a smaller geographical region and selected clientele. Brokers, although also fulfilling a useful role in the industry, may be even more difficult to define and locate, because they generally do not even store parts and may never own or possess the parts they broker. It is clear that the population of distributors and brokers, estimated to be in the thousands, is far larger than FAA resources could adequately monitor.

Beyond the question of resources, it is apparent that the current framework of regulation makes regulation of distributors or brokers unnecessary. FAA regulates the manufacture and introduction of parts into the aviation system. It also regulates how those parts can be installed on a type-certificated product.

Manufacturers with production approvals are required under 14 CFR Part 21, Certification Procedures for Products and Parts, to establish and maintain quality assurance systems. This ensures that each product or part manufactured, procured, and presented for airworthiness approval conforms to its approved type design and is in a condition for safe operation. This responsibility applies equally to parts used by the manufacturer that are obtained from suppliers or distributors. FAA requires that manufacturers' quality assurance systems have safeguards that will protect against the acceptance of parts that do not conform to approved data. These quality assurance regulations have served as effective protection against the use of unapproved parts by FAA-approved manufacturers.

Similarly, 14 CFR Part 43, Maintenance, Preventive Maintenance, Rebuilding, and Alteration, describes the authority and responsibilities of the mechanic, repairman, manufacturer, owner/operator, air carrier, and repair station in the modification, repair, and installation of approved replacement parts. Specifically, 14 CFR 43.13(b) states that "Each person maintaining or altering, or performing preventive maintenance, shall do that work in such a manner and use material of such a quality, that the condition of the aircraft, airframe, aircraft engine, propeller, or appliance worked on will be at least equal to its original or properly altered condition...."

Recommendation 11: Provide guidance to the aircraft repair industry on the PAH and repair station data available from FAA including instruction on how to access current data on PAHs, drop-ship authorization holders, and repair station authorizations for all aircraft parts.

FAA's February 17 response: Partially concur. As stated in the response to the OIG draft survey report on Parts Manufacturer Approval Process, a comprehensive PMS database would be accomplished most appropriately as a commercial activity. The FAA has initiated contacts with industry regarding such a program.

OIG March 7 final report: OIG requested additional information regarding how the development of a comprehensive PMA database would be accomplished as a commercial activity. Specifically, OIG requested information on how the commercial entity would track new FAA approvals and certificate revocations and who would be held accountable for the accuracy of the information.

FAA's current position: Partially concur. FAA determined that a comprehensive PMA database would best be accomplished as a commercial activity. FAA met with industry representatives in April 1993 to discuss the concept of a comprehensive PMA database. Various vendors have contacted FAA and industry indicating their interest in providing such a service.

In a follow-up meeting, FAA asked the Aerospace Industries Association of America (AIA) to lead an industry-wide task team to determine the appropriate course of action. An AIA representative surveyed most aviation interest groups for possible participation, and has been assigned a team leader. AIA is preparing a letter to the aviation interest groups to invite them to participate. The first meeting is planned for the third quarter of fiscal year 1994. Among the team's objectives will be to determine what information should be included, and what the appropriate delivery vehicle would be (eg., on-line, distributed electronic media, microfiche, or other). The task team also was asked to provide quarterly updates to the ARAC parts working group. FAA will participate in the development of the system to ensure that FAA's future needs are met. The team's final task will be to select a vendor to create the system and to manage its operation.

Recommendation 12: Report the material internal control weaknesses disclosed in the OIG report to the Secretary for inclusion in the Secretary's annual report to the President and Congress as required by the FMFIA.

FAA's February 17 response: Nonconcur. The Suspected Unapproved Parts Program is carried out in concert with OIG.

OIG March 7 final report: OIG requested that FAA reconsider its response. OIG states that a material weakness exists in FAA's repair station surveillance and regulatory structure.

FAA's current position: Nonconcur. The audit objectives were to evaluate FAA internal controls established to:

- Certify only qualified repair stations;
- Conduct surveillance inspections that ensure repair station compliance with the Federal Aviation Regulations;
- Track repair station violations until corrective actions are completed; and
- Accurately record and share inspection results.

The OIG's report found:

- FAA has established an adequate certification process for new repair stations.
- Aviation safety inspectors accomplished 98 percent of the required domestic and 99 percent of the required foreign repair station annual surveillance inspections.
- FAA tracked repair station violations.
- FAA recorded inspection results.

However, based on a sample of 14 repair stations (out of 4,744 total repair stations), OIG disclosed the use of aircraft parts of unknown design, quality and origin; outdated maintenance manuals; substitute parts not approved by manufacturers; parts repaired by subcontractors not approved by the FAA.

In 1993, aviation safety inspectors generated more than 25,000 inspection reports from about 4,400 domestic and 344 foreign repair stations. FAA's inspection results were not included in the OIG report or reviewed by the auditors.

An FAA review of the OIG findings has shown instances in which FAA had already identified and corrected the problems that OIG found. Without a comparison of FAA versus OIG findings, no conclusion regarding the effectiveness of the inspection program or a material weakness can be drawn.

V. CONCLUSION

FAA welcomes the OIG's suggestions for improvements in the treatment of parts approval and maintenance in the Federal Aviation Regulations. It is particularly important to note that a number of discrete issues are under discussion, and should not be intermingled. These issues, as raised by OIG in the audits, include:

- Highly technical issues of manufacture and identification
- Documentation of origin of parts
- Maintenance procedures, including the selection of appropriate parts for repairs and the use of appropriate data for repairs
- Commercial issues, including the roles of distributors and brokers in the aviation parts network
- Issues of criminal behavior, including counterfeiting parts and falsifying documents.

The OIG audits and the FAA's follow-up investigations confirm that the existing regulatory framework is ensuring a high degree of safety in the U.S. air transportation industry. The OIG audits have pointed out several areas of potential improvement in FAA surveillance and inspection activities. Initiatives underway by the FAA, including a number that coincide with the thrust of the OIG recommendations, will address these and other items, and will enhance the industry's safety record. The counterfeit issues that were briefly touched on in the audit, while of a potentially disquieting nature, constitute a very minimal aspect of the OIG audit findings, and would not be significantly affected by a major expansion of the FAA's regulatory net, which is essentially technically oriented.

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Memorandum

Subject: ACTION: Response Commenting on OIG Final Report on the Certification and Surveillance of Domestic and Foreign Repair Stations

Date: November 9, 1994

From: Mario A. Lauro

Mario A. Lauro, Jr.
Deputy Inspector General

Reply to Attn of:

To: Federal Aviation Administrator

The OIG appreciates the effort FAA made to prepare its May 6, 1994, response to the Certification and Surveillance of Domestic and Foreign Repair Stations report (R4-FA-4-009). After evaluating the FAA response, obtaining additional data from manufacturers, and performing preliminary audit work on the FAA Suspected Unapproved Parts (SUPs) Program, we remain convinced FAA should implement several fundamental changes to correct the weaknesses in its internal control system of regulations, technical guidance, and surveillance.

Although FAA's response reaffirmed its previous position on every audit recommendation, SUPs supplementary data provided in the response allowed us to close two recommendations. However, nine recommendations are still open, and we again request your reconsideration. Although extensive, your May 6, 1994, response focused primarily upon issues associated with the traceability and substitution of aircraft parts and the examples used in the audit report to illustrate traceability and substitution issues. The attachment to this memorandum provides supplementary information and comments on the issues you raised and examples of breakdowns in FAA's control system.

Based upon consistency of our audit results, discussion with FAA staff, and our preliminary results from the ongoing SUPs audit, we continue to conclude our repair station sample is representative. We concluded that data developed at the 14 repair stations was sufficient to demonstrate significant problems associated with traceability, substitution, repair procedures, and manufacturers and subcontractors of aircraft parts used by repair stations certified by FAA. However, if more extensive audit work is needed to resolve our differences, I am prepared to reopen our audit and expand audit coverage to include additional repair stations, jointly selected and jointly reviewed. Our audit scope and sample selection are described in more detail on page 3 of our attached discussion of your May 6, 1994, response.

Please respond to our supplemental comments and data within 60 days. Based on your response, we will determine which, if any, of the unresolved recommendations warrant referral to the Department Resolution Official. If I can answer any questions or be of further assistance, please feel free to call me on X66767.

Attachment

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Attachment

Reply to FAA Response of May 6, 1994, to OIG Report R4-FA-4-009, Certification and Surveillance of Domestic and Foreign Repair Stations

After evaluating the supplemental information contained in the subject response, we continue to conclude improvements are needed in the FAA internal control system of regulations, technical guidance, and surveillance. In the summary portion of its response, the FAA misstated OIG conclusions. To clearly state our position:

- OIG has concluded that parts of unknown origin are widespread but has not concluded what impact this has upon safety.
- OIG did not allege that such parts are a safety problem, because we have not developed nor seen data sufficient to fully support this conclusion.

In the following narrative, we have provided the status of the recommendations, the rationale for selecting the repair stations we audited, and extensive comments on FAA's response to the final report.

Status of Recommendations

The current status of our recommendations is summarized in the following table.

Recommendation Number	Resolution Status
1.	Resolved*
2.	Resolved
3a.	Unresolved
3b.	Resolved*
4a.	Unresolved
4b.	Resolved
4c.	Resolved
4d.	Resolved*
5.	Unresolved
6.	Unresolved
7.	Unresolved
8.	Unresolved
9.	Unresolved
10.	Unresolved
11.	Resolved
12.	Unresolved

As a result of your May 6 response, we resolved Recommendations 2, 4b, 4c, and 11. For the remaining open Recommendations 3a, 4a, 5, 6, 7, 8, 9, 10, and 12, we again request your reconsideration based upon the supplemental data provided in this memorandum and the emerging SUPs program audit results. For unresolved Recommendation 8, please provide us a target and implementation date. In the absence of corrective action for the unresolved recommendations, we continue to conclude that a material internal control weakness exists. Distributor and broker regulation, repair station activity information, and FAA inspection discipline are essential.

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* Resolved this recommendation with the response to the draft report.

Repair Station Selection

In your transmittal memorandum of May 6, 1994, you questioned whether our audit sample of 14 repair stations provides a representative picture of FAA certified repair stations. The repair stations selected for audit provided repaired products to Federal Aviation Regulations (FARs) Part 121 and Part 135 operators. Although our sample was limited, we continue to conclude our results are representative.

We elected to test 14 of 4,700 certified repair stations for several reasons. Determining the scope of an audit requires OIG to balance the need to do enough testing to provide sufficient and relevant information to support our conclusions against the need to conserve OIG resources by minimizing unnecessary testing. The scope is also influenced by our need to provide timely reporting and to avoid the perception of OIG sensationalizing issues by unnecessarily accumulating large numbers.

For the audit of aircraft repair stations, our ability to select stations for testing was severely limited because of lack of information about the criticality and volume of repairs made by each station. We identified this constraint during the initial stages of our audit through discussions with FAA officials, review of FAA and industry computerized data sources, and detailed review of paper certification and inspection files at four Flight Standards District Offices (FSDO). The four FSDOs were responsible for 548 repair stations. Because we found FAA's system for classifying repair station capabilities was vague and lacked information on the volume or criticality of repairs performed, we recommended FAA improve its regulatory system for classifying repair station authorizations and maintain data on volume and repair criticality. FAA agreed to revise its regulations for station repair ratings, but has not agreed that volume of critical repairs is necessary for surveillance. This issue remains under discussion.

In the absence of criticality and volume information, we consulted with FAA, OIG investigative, and industry officials. We were advised that repairs of aircraft accessories (one type of repair station rating) were frequent and these components were important to the safe operation of aircraft. We found that the largest concentration of repair stations in the Southern Region was approximately 250 stations located in Miami, Florida. We determined that this group represented 40 percent of stations with accessories ratings in the Southern Region. For detailed audit testing, we chose four stations from this group used to perform repairs for a major Part 121 operator.

During our initial work, FAA officials advised us that foreign repair stations, unlike their domestic counterparts, were required to be recertified every 2 years and submit activity reports on repairs made to U.S. aircraft. We selected the African, Middle East, and European Region, because it had 60 percent of all foreign repair stations. We visited the two International Field Offices in this region and reviewed all of their paper files documenting certification and inspection of foreign repair stations. Based upon activity reports available in these files, we selected 10 foreign repair stations active in the repair of critical U.S. aircraft components including engines, constant speed drives, starters, and actuators.

OIG weighed the need for sufficient testing against economical use of our resources, and the need for timely reporting of issues relating to public safety and perception. We concluded that data developed at the 14 repair stations was sufficient to demonstrate significant problems associated with:

- inability to trace parts to manufacturers,
- unapproved substitution of parts,
- use of outdated repair manuals,
- use of unapproved parts from unauthorized manufacturers, and
- subcontracting to unauthorized repair facilities.

Traceability and Substitution of Aircraft Parts

FAA provided extensive discussion of issues related to the traceability and substitution of aircraft parts used by FAA certified repair stations. Our analysis and comments on the issues are provided in the following paragraphs.

Disagreement on Parts Documentation Criteria

FAA attempts to discredit the audit of aircraft repair stations asserting OIG applied criteria different from FARs and FAA written guidance. We continue to find OIG criteria consistent with both the FARs and FAA guidance. FAA and OIG agree the FARs require maintenance and repairs to be of equal or better quality than the originally certified aircraft. FAA and OIG further agree the FARs require all parts replaced on an aircraft to be produced by a manufacturing process approved by FAA. FAA Advisory Circular (AC) 8300.10 dated

December 14, 1990, states that an operator using a part of unknown quality, condition, or origin should prove conclusively such parts conform to the quality FAA approved for the original aircraft manufacturer. Likewise, AC 20-62C dated August 26, 1976, states that an unidentified part should be reidentified by the manufacturer or a person possessing the required data to certify the part meets standards to which it was manufactured. It further states that, the user of the part should have knowledge of the manufacturer because copied ". . . parts appear to be as good as the original part; however, there are many unknown factors to be considered that may not be readily apparent to the purchaser; i.e., heat treating, plating, inspections, tests, and calibrations. All too often the faulty part is not discovered until a malfunction or accident occurs."

Using FAA guidance as criteria, we looked for part and/or package markings as well as documentation to establish the part number and its application, identity of the manufacturer, and FAA production approval status or adherence to established industry or U.S. specifications by that manufacturer. If this data could not be provided to us by the repair station, we also asked for any other documentation of data used to find the part in conformance with FAA requirements. Because repair stations were using many parts without knowing the manufacturer or approval status and without other data to prove conformance, we concluded FAA regulations should be enhanced to require the conclusive proof simply suggested by FAA advisory circulars. We conclude such enhanced regulatory requirements for traceability of parts would provide more reasonable assurance the regulatory objectives of maintaining aircraft quality and using only approved parts would be met.

This section of the FAA response also included a misleading reference to NTSB congressional testimony. NTSB has identified unapproved or "bogus" parts as the cause or a contributing factor in 11 general aviation accidents. There has been one U.S. air carrier incident involving a "bogus" part. In its testimony before the House Appropriations Committee on March 16, 1993, NTSB officials concluded that the potential safety hazard of unapproved parts was "cause for concern."

In addition, OIG is aware of at least one fatal transport aircraft accident linked to the failure of nonconforming parts outside the United States. In 1989, a Convair 580 turbo prop airplane crashed in Norway killing 55 people. The accident cause was listed as substandard bolts and sleeves and a nonstandard auxiliary power unit support.

According to German news reports, a Canadian overhaul facility acquired most of its parts from U.S. distributors.

Conformance of Standard Parts

FAA did not address the OIG concern of standard part conformance with FAR Part 21.303. FAA provided a detailed explanation of the meanings of standard part markings (e.g. AN, MS or NAS) concluding such markings are sufficient evidence of conformance. OIG's concern is, and has always been, that just because a part is marked with a standard part type number does not prove that it conforms to the required specification. Without documentation of the manufacturer, FAA cannot hold such companies accountable for poorly made or counterfeit standard parts.

FAA concludes that documentation of the origin of standard parts would not enhance safety. OIG notes that there is no regulatory requirement for a standard part to be restricted to only noncritical aircraft applications, and FAA has provided no data to support such noncritical use. FAA appears to contradict its conclusion noting that the Government-Industry Data Exchange Program (GIDEP) facilitates communication concerning the "nonconformance of parts or materials, including problems that could lead to a safety hazard."

In addition, Congress enacted legislation in 1990 in reaction to problems associated with nonconforming standard parts. The purpose of the legislation, titled the Fastener Quality Act, is cited as follows: "In order to protect public safety, to deter the introduction of nonconforming fasteners into commerce, to improve the traceability of fasteners used in critical applications, and generally to provide commercial and governmental customers with greater assurance that fasteners meet stated specifications, it is the purpose of this Act to create procedures for the testing, certification, and distribution of certain fasteners used in commerce within the United States." Congress found that," . . . the purchase and use of nonconforming fasteners stems from material misrepresentations about such fasteners made by certain manufacturers, importers, and distributors engaged in commerce." The Act further states, ". . . the lack of traceability by lot number of fasteners sold in commerce is a serious impediment to effective quality control efforts." FAA regulations currently require standard parts used on aircraft to conform to industry standards, but FAA now argues that such conformance isn't important for safety. For FAA regulations to be consistent with this philosophy, OIG concludes that FAA should require Production Approval Holders (PAH) to redesignate any standard parts used in critical applications as specific aircraft parts and then deregulate all remaining standard parts used on aircraft.

Furthermore, FAA's SUPs data and procedures are inconsistent with its assertion that standard parts cannot create safety concerns. Initially, FAA personnel routinely closed SUPs complaints without investigation if they were related to standard parts. In fact, FAA initially ignored our SUPs reports relative to standard parts. Recently, however, FAA changed its policy and currently evaluates the safety consequences of the application of standard parts just like all other parts. As the result of this change, FAA initiated a SUPs investigation for a recent complaint regarding a castled steel nut, standard part AN310-5, with alleged inadequate tensile strength and surface finish. FAA personnel judged this part could require "emergency procedures to occur upon failure."

FAA asserts that markings on standard parts are sufficient for mechanics to install them on certified aircraft without knowing who manufactured them. OIG notes that counterfeit and substandard standard parts will have such markings, too, and without traceability, FAA significantly increases the risk of not detecting either counterfeit or substandard standard parts. The FARs do require standard parts to conform to industry standards, but FAA has no procedures to ensure that they do. In a 1991 criminal investigation, a supplier was found to be modifying commercial grade fasteners and representing them as NAS standard parts. These parts included high strength, socket-head cap screws used where structural failure could result in the failure of the aircraft. These parts had been installed on commercial aircraft, and one airline was experiencing a high failure rate for these parts.

Parts Manufacturer Approval

FAA asserts that direct shipment of aircraft parts without FAA authorization is simply a documentation problem with no relevance to ". . . counterfeit, fraudulently documented, or unsafe parts." There is no certainty that parts sold without FAA approval are identical to those shipped to the PAH. These parts may not have gone through the same quality control tests as required by the PAH. Furthermore, an unscrupulous manufacturer could offer parts rejected by the PAH directly to repair stations or owner/operators. If FAA knew for sure that these parts were identical to PAH parts, it would not require these manufacturers to obtain Parts Manufacturer Approval (PMA) authorization or surveil them for compliance with this regulatory requirement. Furthermore, FAA SUPs files do not support FAA's contention that absence of a PMA is insignificant. To date, 3 of 7 ADs issued by FAA citing the possibility of "catastrophic consequences" of part failure were for parts produced without a PMA. In a 1989 case, a non-certified manufacturer sold at least 2,938 cone bolt nuts. FAA officials concluded that this manufacturer was obtaining NAS standard parts and redesignating them with a Boeing part number. In another case, a company was producing parts capable of "critical consequences" for Bell Helicopter parts, and FAA issued an Airworthiness Directive (AD) to warn the industry about these unapproved parts.

Use of Parts Not in the Manufacturer's Manual

Contrary to FAA's assertion, OIG did not use the manufacturer's manual as the sole acceptable documentation for aircraft parts. Whenever a part number used was not consistent with the current manual, we asked the repair station for an explanation and documentation. Many times repair stations did provide acceptable documentation. When they did not, however, we considered the substitution suspect and requested a technical decision from FAA. In some cases, we uncovered the use of allegedly equivalent parts produced by unauthorized manufacturers. In other cases, FAA retroactively determined that use of different parts was close enough and didn't cause a safety problem, but in some cases admitted a "maintenance error" had been made. Overall, the examples of substitution of unapproved parts, maintenance errors, and fortunate use of "close enough" parts supports OIG's position that substitutions should be explained and documented at the time of use rather than rationalized after use.

Regulation of Brokers and Distributors

Although FAA vigorously disagrees, OIG continues to advocate regulation of brokers and distributors. Although counterfeit and fraudulently documented parts may enter the system through brokers and distributors, this is not the only basis for regulation of them. Rather, based upon FAA's rules that parts must be airworthy before they can be installed on aircraft, FAA requires parts manufacturers to be approved in order to ensure quality. If brokers and distributors do not identify the source of the parts they are selling, the integrity of the entire control system is compromised. Thus, OIG's recommendation to regulate brokers and distributors was designed to make them accountable for selling parts obtained only from approved sources and provide FAA the opportunity to trace suspect parts through brokers and distributors.

Because FAA does not regulate brokers and distributors, administrative investigation and tracking of suspect parts are much more difficult.

SUPs complaints about brokers and distributors have been closed by FAA without action citing lack of authority. For example, FAA issued an AD regarding horizontal stabilizer pins sold by a broker of surplus aircraft parts. FAA engineers judged these pins could have "catastrophic consequences." The parts did not conform to type design and the company could not provide any record of origin. The SUPs file states: "The Flight Standards side (AFS-300) returned the SUPs report because the parts in question came from a sales/distributor. Since the organizations are not certified maintenance persons and no approval for return to service exists, the matters are not subject to Flight Standards Investigation."

OIG agrees that regulation of brokers and distributors has the potential to impact FAA resources. However, several options are available to FAA to avoid a potential resource problem. FAA could prioritize its surveillance and enforcement efforts on those parts critical to flight safety and deregulate a large percentage of parts it considers unrelated to flight safety.

FAA suggests a voluntary industry program to provide accreditation to brokers and distributors instead of the regulatory approach suggested by OIG. OIG has two problems with FAA's suggestion. First, it is simply voluntary and, therefore, failure to conform has no adverse consequences. Second, even if FAA could obtain some compliance through air carriers and repair stations, owners and operators of smaller aircraft would receive much less benefit. Especially for aircraft parts critical to flight safety, OIG concludes there is an inherent Government role to protect the public from accident and injury missing from FAA's approach.

Aircraft Parts Used to Illustrate Traceability and Substitution Problems

FAA provided extensive discussion of specific parts we used in our report to illustrate traceability and substitution issues. Our analysis and comments are provided in the following paragraphs.

FAA Technical Verification

With respect of specific parts used as examples of documentation and substitution issues in OIG's report, the FAA response states on page 2, "In 98 percent of the cases in which OIG provided information sufficient to accomplish a complete investigation, FAA personnel with the technical expertise to judge the acceptability of aeronautical parts found information to verify the integrity of any part in question." However, this FAA conclusion lacks objectivity and fairness because FAA's "technical verification" of OIG examples was based upon flawed methodology.

FAA's summary of its "technical verification" of examples discussed in the OIG report is biased. Of the 51 examples in the OIG report FAA cited, FAA agrees that 5 (4 manufactured without FAA approval and 1 counterfeit) are examples of unapproved parts, but concludes that none of them represent a safety problem.

Twenty-two more of the 51 OIG examples illustrated problems with traceability. Without any verification, FAA dismissed 20 of the 22 based solely upon the part number designating the part as industry standard. We have previously discussed our concern that part numbers and markings do not prove conformance with part specifications. FAA dismissed the other two parts by reviewing a like part at a different repair station, noting they could trace that one. In general, FAA notes that traceability to origin is not specifically required by the FARs. OIG concludes that this FAA methodology did not prove that these parts conformed to specifications. OIG further concludes that in order to meet the FAR goals of maintaining quality levels and using only approved parts, traceability to manufacture is a necessity.

As examples in the OIG report, 27 of the 51 parts were given to illustrate substitution of parts without prior approval of owner/operators, manufacturers, or FAA. FAA was able to demonstrate that 5 of these 27 were equivalent parts and 1 was not actually used. FAA also agrees that two were, and one more probably was, a maintenance error. Although FAA and OIG agree that 9 more of these 27 parts were not identical to that specified in the manual, FAA has determined that they were close enough not to pose a safety hazard. Based upon differencea in documentation, FAA and OIG are still working to resolve the 9 remaining parts. On August 9, 1994, we provided additional data and questions to resolve open issues on these nine parts. To date, however, FAA has not responded to us.

OIG has concluded that FAA has oversimplified the part substitution issue. Many parts look identical but are made of materials or have coatings that must be determined by testing [see previous citation of Advisory Circular (AC) 20-62C on page 7]. OIG notes that repair stations could not justify substitutions at the time we visited their facilities. Because FAA places final responsibility on the owner/operator to ensure use of approved parts, we simply concluded that substitution of parts should only take place with prior approval. Otherwise, owner/operators cannot reasonably be expected to assume this responsibility. Extensive research was not in evidence at the repair station, and FAA's extensive efforts to determine appropriateness of repairs as well as the three incidents of unacceptable substitutions, demonstrate the weakness in the current process. OIG found that 17 of 88 repairs we reviewed included substitution of parts without prior approval.

FAA also stated that 13 more parts used as examples in OIG's report did not have sufficient information for FAA to evaluate. However, FAA had detailed information on 4 of these cases previously submitted through its SUPs database, and OIG would have provided any additional information had FAA asked. OIG was submitting all of the parts suspected as unapproved to FAA, but discontinued those submissions when FAA determined that insufficient documentation to trace parts to origin and outdated repair manuals would not be accepted as a SUPs case subject to FAA investigation.

The case histories of two parts FAA "technically verified" and used to describe documentation issues are provided to illustrate OIG's concern with the objectivity of FAA "technical verification" process:

Bearing (Part Number 54322)

FAA responded "its investigation revealed that:

- Additional information contained in the component manufacturer's manual showed that Part Number (P/N) 54322 was the equivalent of Miniature Precision Bearing (MPB) P/N F860.
- The package did bear a label from MPB, which is the only source for this particular part; however, there was no evidence of direct-ship authority.
- FAA was able to conclude that there was reasonable evidence to show that the part was of known origin. FAA found that, based on the documented evidence and the experience of the repair station, the part in question was used properly by the repair station. This is another example of the PMA issue, the subject of extensive industry/FAA analysis."

OIG Comments on FAA Investigation of Bearing 54322: In its response, FAA implied that its inspectors looked at the same part at the same repair station we did. However, our part did not have a MPB label as did the one FAA sampled. Also, FAA's SUPs case file did not include any information about FAA's observation of the actual part. We used this part for an example of unknown origin, not the

PMA issue. We still conclude additional documentation would provide more assurance this part was from an approved manufacturer, Also, regulation of part distributors/brokers would allow for the traceability of this part back to the manufacturer.

Details from our audit working papers and Supplemental data gathering on bearing 54322 disclosed:

☑ On November 5, 1992, we contacted a Quality Inspector at the vendor that supplied the part to the repair station to determine whether the vendor was a manufacturer or a distributor for this part. We found that although the vendor does manufacture some parts, it does not manufacture the subject part. The vendor does distribute the subject part. The vendor's Quality Inspector told us MPB was the manufacturer of this bearing.

☑ As stated in our report, neither the part certification nor the part/package markings we observed during the time of our onsite visit showed evidence of MPB being the manufacturer. Only the vendor was listed on the package. We made our onsite observations in June and July of 1992. Without FAA recalling the specific item identified on the work order we selected, FAA cannot logically reach conclusions on the bearings we visually observed based on the FAA inspections conducted in April 1994.

☑ OIG sent a SUPs notification to FAA on November 25, 1992, identifying the repair station, work order number, and reasons for questioning the part's origin.

☑ FAA opened a SUPs case on the subject bearing in its SUPs data base on December 3, 1992, as case number 92-259. This SUPs case included 17 other parts purchased by the repair station without adequate traceability documentation to provide reasonable assurance of manufacturing origin/source. Per the SUPs data base, this SUPs was closed on November 1, 1993, as a category 4 SUPs (the failure of the unapproved part is not likely to adversely affect safety or operating capability). FAA reopened the SUPs as case number 94-059. The SUPs data base shows case 94-059 closed out on April 7, 1994, as a category 4.

☑ We reviewed the case file, which contains a letter dated April 7, 1994, from the Miami FSDO. The FSDO concluded the lack of documentation on certain parts reported by OIG are not required by regulations. The SUPs case file did not contain documentary evidence the FAA either reviewed any actual documentation or parts.

Pin (Part Number 768128)

In responding to OIG conclusions on this JT8D engine pin, FAA replied that "FAA was unable to investigate the specific example contained in the OIG report because the report did not include identification of the repair station at which the parts were found. However, FAA did visit an FAA-certificated repair station in Miami, Florida, which also had the same pins in stock. The response stated that the results of the FAA investigation, based principally on this repair station visit and contact with Pratt & Whitney, revealed the following:

- Repackaging parts, such as the pins in question in a repair station bag with labels as described by the OIG auditors, is a common industry practice.
- For these parts and many other small parts, it is not uncommon to find the part number and the manufacturer's symbol hand etched. All three parts of this type (P/N 768128) found at the Miami repair station were from known sources with proper supporting documentation. Each part also had a hand etched part number and manufacturer's symbol.
- Based on the information provided by the OIG auditors, there is no reason to believe the parts in question are not approved."

OIG Comments on FAA Investigation of Pin 768128: We provided a SUPs report to FAA in February 1993 that contained the detailed data needed to facilitate a meaningful FAA investigation. On the SUPs we submitted for this pin, FAA opened SUPs case number 93-025 on March 10, 1993, closing it on March 22, 1993, as a category 5 (not a SUPs issue). Therefore, although our final audit report dated March 7, 1994, contained only summary data on this engine pin, OIG as previously agreed with FAA, provided the necessary data in early 1993 that would have permitted FAA to perform a proper investigation. However, our review of SUPs file 93-025 revealed FAA did not research the part when the SUPs report was received in March 1993. Also, if FAA had made a telephone request for more data on this engine pin, the OIG would have provided all relevant information contained in our working papers. Prior to beginning our audit, we conferred with Pratt & Whitney engineering, technical support, and packaging management, including members of the Unapproved Parts Team. In August 1992, we met with this engine manufacturer's personnel to receive technical insight on parts confirmed by Pratt & Whitney to be either counterfeit or "unauthorized" (part met blueprint technical specifications, but manufacturing source and reliability unknown). The Unapproved Parts Team provided this part number as a part that had been confirmed "unauthorized" and was on the market.

Subsequently, at the only repair station where we selected this part for testing, we found the part in the inventory of a repair station in the Republic of Ireland. Because the part had questionable documentation and was purchased from a distributor that as described in the final audit had a history of selling confirmed unapproved parts, we reported a SUPs to FAA.

We acknowledge that the existence of a possible SUPs engine pin cannot be projected to the entire population of repair parts, and we did not make any projections. Likewise, no assurance of the use of approved parts is provided by FAA testing a part with a like part number at a different repair station at a significantly later date and concluding that ". . . there is no reason to believe the parts in question are not approved."

FAA stated in its response that it is common industry practice to repackage parts. Because it is common industry practice to repackage parts does not mean it is an approved part. On July 2, 1992, we were told by a FAA Principal Maintenance Inspector in the Miami FSDO that there are certain flags as to the legitimacy of parts. The inspector stated one thing to look for is repackaged parts. The inspector also stated that when going through a stockroom, you do not want to see repair stations repackaging parts.

FAA responded it is not uncommon to find hand-etched parts. We agree. We never stated that hand-etching made the part unapproved. We were only commenting on how it was marked to provide additional information for FAA to research the legitimacy of this part. In our SUPs sent to FAA, we commented that it has been shown in the past that part markings are not an absolute indicator of approved parts.

Finally, FAA states that based on the information we provided, there is no reason to believe the parts in question are not approved. Along the same line, we concluded there was not enough data to determine the parts were approved. The SUPs case file did not include any of the information provided by FAA in its response. We still conclude additional documentation would provide more assurance this part was from an approved manufacturer. Also, regulation of part distributors/brokers would allow for the traceability of this part back to the manufacturer.

Preliminary SUPs Survey Results Have Reinforced OIG Conclusions

Although our results are only preliminary, our audit of the SUPs program has revealed additional direct evidence to support the need for FAA to improve its internal control system of regulations, technical guidance, and surveillance. As of July 18, 1994, FAA's SUPs database showed 961 SUPs cases. (Note: This figure includes 133 duplicate cases rolled over to FY 1994 and assigned 1994 case numbers.) FAA personnel had determined that 340 or 35.4 percent of all SUPs cases had some "adverse affect on safety." In fact, FAA personnel placed 43 cases in its investigative priority category "catastrophic effect." Further, FAA has taken 109 actions including 7 ADs, 18 Airworthiness Alerts, 22 Flight Standards Airworthiness Information Bulletins, 3 Special Issue Alerts, and 59 enforcement actions.

In addition, SUPs data significantly understates the severity of the unapproved parts problem. The SUPs database does not indicate the magnitude of each case. Some cases may involve a single part while others involve thousands of parts of hundreds of different types. An FAA employee estimated that 100,000 to 200,000 suspected parts may have been submitted to the FAA SUPs system to date. In addition, the category of safety significance is assigned by FAA personnel based upon the specific part cited in the complaint. FAA does not investigate to determine whether a manufacturer or repair station producing an unapproved noncritical part also manufacturers or repairs unapproved critical parts. Until we complete our audit of the SUPs program, we cannot assess the validity of complaints that FAA does not record all SUPs received.

Based upon our preliminary review of FAA's SUPs database, discussion with FAA personnel involved in this program, and discussion with OIG personnel investigating SUPs cases, we do not understand FAA's basis for concluding that their existing regulatory system provides a high degree of safety and counterfeiting is minimal. Although FAA has identified many SUPs, there is no systematic record of how many of these parts have actually been recovered or how extensive a search has been performed to recover them. For example, one SUPs case (also the subject of an OIG investigation) involves a Pratt and Whitney engine bearing spacer that was determined to be counterfeit and FAA engineers judged could have "catastrophic consequences." Although an AD has been issued, this case has not been closed because FAA personnel do not consider the threat of these parts resolved. According to OIG investigative records, a worldwide inspection of JT8D jet engines and inventories as required by the AD has yielded 700 suspect seal rings, 300 bushings, and 130 spacers from 14 domestic and 2 foreign airlines as of August 4, 1994.

FAA is in the process of issuing another AD for a SUPs case involving "suspected paperwork with engines." FAA personnel have determined that an aircraft involved in an accident had an engine installed which was not approved for that model aircraft. Upon further review FAA found that:

- required work had not been performed even though engine records were documented that such work including ADs had been performed,
- life limited turbine components had less remaining life than indicated by engine maintenance records,
- unapproved parts had been installed, and
- modifications had been made without approved data.

This case involves an FAA certified repair station doing work on hundreds of engines over several years. It is also judged by FAA engineers as "catastrophic consequences" and remains an active case. FAA personnel have told us there are no written guidelines for FAA inspectors to use to perform SUPs investigations and no requirement to account for the parts identified in the complaint.

FAA is also aware of numerous criminal investigations pursued by OIG involving counterfeit parts or misrepresented paperwork. For example, a 1992 investigation of another FAA certified repair station determined that turbine blades for jet engines had been improperly repaired. The company's general manager acknowledged directing his employees to spray graphite on engine parts to conceal defects in required coatings and omitting required preparation of the parts for repair. The company has agreed to make a "remedial payment" to FAA of $5 million and to escrow another $5 million to be used to test suspect engine parts repaired by the company. This company supplied these engine parts to virtually all major U.S. and international air carriers worldwide.

SURVEY REPORT ON PARTS MANUFACTURER APPROVAL PROCESS

FEDERAL AVIATION ADMINISTRATION

REPORT NUMBER: R6-FA-4-007

DATE ISSUED: March 7, 1994

Parts Manufacturer Approval Process

Federal Aviation Administration

Report No. R6-FA-4-007 *March 7, 1994*

SYNOPSIS

Conclusions

The Office of Inspector General and Federal Aviation Administration (FAA) reviews have identified a systemic problem with replacement aircraft parts being produced outside the FAA established parts manufacturer approval (PMA) process or one of the alternative approval processes. The FAA listing of approved parts manufacturers also was incomplete and inaccurate. FAA is currently addressing deficiencies associated with the production and use of unapproved aircraft parts. Because of the significant ongoing initiatives, we will not make a comprehensive audit of PMAs until FAA has fully implemented its new procedures.

Monetary Impact

This report does not recommend a recovery or better use of funds. Our recommendations provide for developing an enforcement plan, reporting internal control weaknesses, and evaluating informational needs.

Recommendations

We recommend the FAA Administrator (i) develop a plan for taking enforcement actions against manufacturers who produce replacement aircraft parts outside the FAA-approved system for use on certificated products; (ii) report material internal control weaknesses to the Secretary for inclusion in the annual report to the President and Congress, and (iii) evaluate industry and FAA needs for comprehensive information on PMAs and develop appropriate means to meet those needs.

Management Position

FAA concurred with Recommendations A1 and B1. Actions planned were reasonable. FAA nonconcurred with Recommendation A2 to report material internal control weaknesses to the Secretary because it had taken positive steps to control issuance of unapproved replacement parts. In our opinion, the internal control weaknesses should be reported until corrective actions are completed We have asked FAA to reconsider its position.

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Memorandum

Subject: ACTION: Survey Report On Parts Manufacturer Approval Process, FAA Report Number R6-FA-4-007

Date: March 7, 1994

From: A. Mary Schiavo Mary Schiavo
Inspector General

Reply to Attn of: JA-1

To: Federal Aviation Administrator

This is our survey report on the Federal Aviation Administration (FAA) parts manufacturer approval (PMA) process. The audit objectives were to evaluate FAA's (i) program for granting PMAs, (ii) surveillance to ensure manufacturers with PMAs comply with authority given them, and (iii) PMA listing for accuracy. This audit was one of a series of audits evaluating various aspects of the FAA program for regulating replacement aircraft parts.

We concluded the FAA process for granting PMAs adequately ensures recipients of PMA authority have proper design data and fabrication inspection systems to produce parts which are safe for installation on certificated aircraft products. We identified two areas needing improvement as summarized below.

Office of Inspector General and FAA reviews have identified a systemic problem with replacement aircraft parts being produced outside the FAA established PMA process or one of the alternative approval processes. As a result, inventories of aircraft parts were contaminated with parts of unknown origin and unknown quality (see page 4).

The FAA listing of PMAs was incomplete and inaccurate. While the current listing has not served a useful purpose, FAA needs to identify a better means for providing comprehensive information on PMAs (see page 12).

This report does not recommend a recovery or better use of funds. Our recommendations provide for developing an enforcement plan, reporting internal control weaknesses, and evaluating informational needs.

In the February 18, 1994 response to the December 13, 1993 draft report, FAA concurred with Recommendations A1 and B1, and nonconcurred with Recommendation A2. FAA agreed to take action to strengthen enforcement efforts and develop better means for providing comprehensive information on PMAs. Actions planned were reasonable. FAA nonconcurred with reporting material internal control weaknesses in the next annual report to the Secretary. In our opinion, the internal control weaknesses should be reported until corrective actions are completed. We ask management to reconsider its nonconcurrence. In accordance with Department of Transportation (DOT) Order 8000.1C, please provide within 60 days, FAA plans for reporting the internal control weaknesses, details of how the commercial development of a PMA database will be accomplished, and a target implementation date for Recommendation B1. Recommendation A1 is considered resolved, subject to the follow-up provisions of DOT Order 8000.1C. This report was sent to the Office of Management and Budget Circular A-123 Coordinators within FAA and DOT.

We appreciate the cooperation and assistance extended by your staff to our audit team. If I can answer any questions or be of any further assistance, please feel free to call me on 366-1959 or my Deputy, Mario A. Lauro, Jr., on 366-6767.

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I. INTRODUCTION

Background

All aircraft used in civil operations within the United States are required to be certificated in accordance with the Federal Aviation Act of 1958 and implementing regulations to ensure airworthiness and safety. The FAA Aircraft Certification Service in Washington, District of Columbia, prescribes standards governing the design, production quality assurance, and airworthiness certification of aeronautical products.

The FAA Aircraft Certification Service has four Directorate offices, each having engineering and manufacturing offices. On the engineering side, 10 Aircraft Certification Offices, and about 260 aerospace engineers review and approve the design of aircraft, aircraft materials, parts, and components. On the production side, 17 Manufacturing Inspection District Offices, and about 130 inspectors review and approve production systems, monitor compliance with prescribed standards, and take regulatory enforcement action as needed. Manufacturing Inspection District Offices issued PMAs to 1,091 companies as of December 31, 1992.

FAA regulates the manufacture of replacement aircraft parts. Title 14, Code of Federal Regulations, Part 21, Section 303(a), states:

> Except as provided in paragraph (b) of this section, no person may produce a modification or replacement part for sale for installation on a type certificated product unless it is produced pursuant to a Parts Manufacturer Approval issued under this subpart.

Paragraph (b) exceptions include the following alternate means for manufacturing aircraft parts:

(1) Parts produced under a type or production certificate.
(2) Parts produced by an owner or operator for maintaining or altering his own product.
(3) Parts produced under an FAA Technical Standard Order.
(4) Standard parts (such as bolts and nuts) conforming to established industry or U. S. specifications.

Regarding these exceptions, FAA issues type and production certificates to companies manufacturing aircraft, aircraft engines, or propellers. These companies are authorized to manufacture and sell replacement parts for certificated products. Owners or operators may produce parts for installation on their aircraft, provided the parts are approved by FAA. Manufacturers may also obtain an FAA Technical Standard Order to manufacture articles (materials, parts, processes, or appliances) which meet a minimum performance standard. Specifications for standard parts are identified in FAA-approved type design data. Users are responsible to ensure these parts conform to applicable standards.

The typical process to obtain a PMA involves two steps. The first step is an Aircraft Certification Office review of applicants' design data to make a finding that the design meets airworthiness requirements for the product on which the part is to be installed. If FAA approves the design, the second step is a Manufacturing Inspection District Office review of the applicants' fabrication inspection system and facilities for compliance with applicable Federal Aviation Regulations. If the design and fabrication inspection systems are acceptable, FAA issues a PMA. Recent and proposed changes to the process are discussed in finding A.

Objectives, Scope, And Methodology

The audit objectives were to evaluate FAA's (i) program for granting PMAs, (ii) surveillance to ensure manufacturers with PMAs comply with authority given them, and (iii) PMA listing for accuracy. This audit was one in a series of audits evaluating various aspects of the FAA program for regulating replacement aircraft parts.

Our survey, made between November 1992 and March 1993, covered Fiscal Year (FY) 1992 and FY 1993 activities. The survey was made at FAA Aircraft Certification Service in Washington, District of Columbia; Aviation System Standards and Flight Standards Service Regulatory Support Division at Oklahoma City, Oklahoma; Manufacturing Inspection District Office at Van Nuys, California; and five PMA holders. We also obtained information from the four FAA Directorates and the Manufacturing Inspection District Office in Oklahoma City, Oklahoma. At FAA Headquarters, we interviewed program officials and reviewed agency initiatives and guidelines for issuing PMAs and monitoring compliance. At the Van Nuys Manufacturing Inspection District Office, we reviewed procedures for the granting and surveillance of PMAs. We also isited five PMA holders that fall under the cognizance of the Van ys Manufacturing Inspection District Office. FAA inspectors accompanied us on these reviews. At each of the five, we made selective tests of their manufacturing, inspecting, marking, and shipping procedures and controls for conformance with Federal Aviation Regulations. We excluded parts purchased from or sold to brokers. At the Regulatory Support Division, we evaluated 66 parts to validate the accuracy of FAA's PMA records. The survey was made in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

Internal Controls

The survey included an evaluation of FAA internal controls for issuing PMAs and monitoring compliance. We reviewed FAA regulations, guidelines, and initiatives for issuing and monitoring PMAs. We also visited the Van Nuys Manufacturing Inspection District Office and five PMA companies to test the adequacy of FAA procedures and controls.. Our assessment of internal control weaknesses is identified on page 10 of this report.

Prior Audit Coverage

The OIG has not previously audited the PMA process.

II. FINDINGS AND RECOMMENDATIONS

Finding A. Parts Manufacturer Approval Process

OIG and FAA reviews have identified a systemic problem with replacement aircraft parts being produced outside the FAA established PMA process or one of the alternative approval processes. Noncompliance with PMA regulations was attributed to a lack of knowledge of regulations and insufficient FAA enforcement. As a result, inventories of aircraft parts were contaminated with parts of unknown origin and unknown quality.

Discussion

FAA issued regulations governing the production of replacement and modified parts for civil aviation aircraft in Title 14, Code of Federal Regulations, Part 21, Section 303, Replacement and Modified Parts (see Background on page 1). Replacement aircraft parts produced outside an FAA-approved system are "unapproved" for installation on certificated aircraft.

FAA had established an acceptable process for granting PMAs. The process provided for appropriate reviews of applicants' design data and fabrication inspection systems to ensure parts produced under the PMA authority met established airworthiness requirements.

The aviation industry has, however, ignored Federal requirements for obtaining PMAs from FAA. OIG and FAA reviews identified a systemic problem of manufacturers producing and selling replacement aircraft parts without PMA authority. Many manufacturers are original equipment manufacturers (OEMs) who supply parts and materials to other certificate holders. Being an OEM does not satisfy FAA parts approval requirements. OEM parts supplied to certificate holders are inspected and tested by the certificate holder. Therefore, OEM parts produced and sold to other than certificate holders are not subject to the same level of inspections and tests.

An audit of the FAA Mike Monroney Aeronautical Center (Report No. R6-FA-3-036, February 5, 1993) found about 39 percent of FAA's own inventory contained replacement aircraft parts not manufactured by, or traceable to, FAA-approved sources. An audit of 4 domestic and 10 foreign FAA-approved repair stations (Report No. R4-FA-4-009) disclosed similar results. Specifically, of the parts sampled, 43 percent of newly-purchased parts and 95 percent of parts purchased from distributors or brokers lacked reasonable evidence to verify the parts met FAA approval requirements or industry or U. S. specifications.

FAA inspections disclosed similar results. During 1992, a team of FAA inspectors inspected five repair stations and one major commercial operator. These inspections were made in conjunction with an investigation of a California company that had produced modification or replacement aircraft parts without a PMA for those parts. The companies inspected had purchased unapproved parts from the company under investigation. The inspections were made to determine how widespread the use of unapproved parts was throughout the aviation industry. Findings of the team included:

> The sale and distribution of unapproved parts is quite extensive. . . . In the procurement process, the cost and availability of parts are the overriding factors in determining what parts are procured by Repair Stations and Operators. Purchasing practices do not consider FAA approved sources. . . . Parts received are given nothing more than an incoming visual inspection for identification, obvious defects and quantity. Disclaimer statements and condition codes on shipping documents are never questioned and traceability to an FAA approved manufacturing source is not considered. . . . The unapproved parts problem continues to grow at a rapid rate. It appears to be global in scope, and aviation safety could be compromised.

FAA has known about the unapproved parts problem for years. The following excerpts from an FAA February 23, 1988, letter to a large aircraft parts supplier show FAA involvement and its hesitance to take enforcement action against an OEM that sold aircraft parts without PMA authority.

> On November 15, 1984, an FAA audit [of company] . . . was conducted to determine compliance with FAR 21.303. The company held PMA based on a licensing agreement from a STC (Supplemental Type Certificate) holder., During the course of the audit it was noticed that other parts were produced for spares under "direct ship authority" from the primes supposedly derived from the contract requirement. The validity of the "direct ship authority" was questioned but was not pursued. [Bracketed phrase added.]

> On August 21, 1986, another FAA audit at the same [company] . . . was conducted. The "direct ship authority" was again questioned due to the bogus-parts issue as related to identifying the part or shipping document that it was produced under a FAA production approval, i.e., the prime's production approval. . . . The prime manufacturer at this time was reluctant to follow through with their "direct ship authority" by contract requirement and suggested that [company] . . . obtain FAA-PMA. [Bracketed phrases added.]
>
> Based on the reluctance of the prime manufacturer to allow the declaration, this [company] . . . and others decided to pursue FAA-PMA based on licensing agreements from the primes. The enforcement case was closed administratively based on this commitment. [Bracketed phrase added.]
>
> During the past two years, [company] . . . has been trying to obtain licensing agreements from the primes to obtain FAA-PMA. They have only been successful with . . . a few parts. Meanwhile, other spares are continued to be shipped without FAA-PMA or identification of having been produced under the primes production approval. [Bracketed phrase added.]

While the letter presents a partial historical perspective of parts being manufactured without proper approval, the following October 13, 1992, message from the Director of Aircraft Certification Service shows both a continuing problem and concern with taking enforcement actions against OEMs supplying parts without PMA.

> For the next several months (maybe longer) we will be going through quite a transition, getting the system cleaned up by approving many thousands of parts produced by many thousands of OEM suppliers. This is going to take time and no one has a handle on just how long at this point.
>
> Many of these suppliers have been shipping parts to the user community for years, and we need to be very careful not to cause a major disruption in the supply of parts while we are trying to get the system on track.

> Please ask your field offices to refrain from directing these suppliers to stop shipments until we can get all the parts approved. Instead we should be encouraging these companies to make application and obtain their PMAs as outlined by the notice - if they can qualify. . . . We can always tighten things up later if people don't take advantage of this opportunity to "get legal."
>
> While we are trying to deal with this mountain of approvals, we don't want to create a market for bogus parts (through a shortage of good parts) or to drive the price of spares already in the field out of sight.

The existence of OEM unapproved parts is primarily attributed to lack of knowledge of the PMA requirements. The sale and use of OEM parts without PMA also have been sanctioned by an industry-wide attitude, including Production Certificate holders and users, that these parts were acceptable without PMA. FAA began educating the industry on approved parts through seminars in October 1992. The seminars were briefly stopped in early 1993 when industry representatives expressed concern that seminars were causing unnecessary confusion and panic. FAA presented 61 seminars at 23 locations during FY 1993 and scheduled 51 seminars at 26 locations for FY 1994.

Survey Observations At Van Nuys District

FAA surveillance over PMA holders by the Van Nuys Manufacturing Inspection District Office was only partly effective. We selected five companies with PMAs in the Van Nuys District and evaluated compliance with regulations. Based on a Suspected Unapproved Parts report generated by OIG, district office inspectors previously investigated two of these companies. The inspectors reported that the manufacturers corrected the problems. We found that while FAA and the manufacturers acted upon all specific instances reported, similar conditions continued to occur in these companies.

For example, a September 30, 1992 Suspected Unapproved Parts report identified a company as manufacturing and selling aircraft parts for which it had no PMA. FAA inspectors investigated and confirmed the finding. The manufacturer agreed to stop selling the parts to a broker and sell instead only to the authorized PMA holder. On followup, we found the manufacturer still was manufacturing and selling aircraft parts without FAA authority. We reviewed sales records and found the manufacturer sold a capsule assembly that was a piece part for an aircraft pressure switch. The company did not have PMA authority for the part or switch. The Vice President of Sales said he thought it was permissible to sell piece parts for aircraft components, and acknowledged selling other similar parts without FAA approval. According to the FAA inspector accompanying us, these parts require a PMA to be sold for use on aircraft.

The same Suspected Unapproved Parts report disclosed that the PMA holder had not performed supplier surveillance as required by the company's Quality Control Manual. We confirmed that although the PMA holder had since inspected the supplier, the company had not reviewed or scheduled reviews for several other suppliers. Two other PMA holders we visited did not complete supplier surveillance in accordance with FAA-approved quality control manuals.

Procedures For Scrapping Parts

FAA has no regulation requiring scrap parts to be destroyed. At this time, FAA does not intend to regulate the destruction of scrap parts by manufacturers, end users, or distributors. However, FAA is developing information and guidance in the form of an Advisory Circular on methods to dispose of unairworthy parts and materials. Publication in the Federal Register for public comment is projected for the second quarter in FY 1994.

Two of the five companies we visited segregated scrap parts and "spotted" them with red paint to indicate scrap. The companies sold the scrap parts to salvage companies without destroying them.

We visited one salvage company with an FAA inspector. We saw a container of small aircraft parts that had been cleaned (no red paint was visible). A company official stated the parts had been sold and asked us to leave the storage area. We referred this matter to our Office of Investigations.

Initiatives To Address Unapproved Parts Issue

In response to media attention and an OIG recommendation, FAA undertook many initiatives to address the unapproved parts issue. FAA published Advisory Circular (AC) 21-29, Reporting Suspected Unapproved Parts, in August 1991. FAA Order 8120.10, Suspected Unapproved Parts Program, was issued in September 1993 to address management of the suspected unapproved parts program. In addition to approved parts seminars, other completed actions included distribution of decals, brochures, and an informational video. Other actions directly related to the PMA process are discussed below.

In July 1992, FAA established a Parts Approval Action Team. The FAA team issued Phase I guidelines, Parts Manufacturer Approval under Evidence of Licensing Agreement, September 30, 1992. These guidelines provide for issuing PMAs to suppliers who can show evidence of a licensing agreement with a design approval holder. If the application is complete, FAA will issue the PMA. As of September 1993, FAA received nine applications for PMA under Phase I guidelines and approved six.

FAA drafted Phase II guidelines, Parts Manufacturer Approval by Identicality, which it plans to issue during FY 1994. Phase II will address suppliers of production approval holders who lack a licensing agreement but can show "identicality" of parts. FAA will eliminate detailed reviews of engineering data. FAA will also notify the production approval holder of the application and ask them to verify the information submitted by the applicant. If applications and substantiating data are complete, FAA will issue PMAs without further review.

FAA also formed a Parts Disposition Action Team to rid the industry of unapproved parts. The Phase III Parts Disposition Action Team has been tasked to assist FAA Flight Standards Service to develop policy and procedures for ascertaining and documenting the airworthiness of replacement and modification parts that are in service, in an operator's parts inventory, or in stock at a distributor. Industry will use these guidelines to determine the status of existing parts, and FAA will use the guidelines to keep unapproved parts out of repair stations and off aircraft. The team met with industry groups in September 1993 to obtain their comments on proposed guidelines. The team plans to issue Phase III guidelines by March 1994.

As a result of experience with Quality Assurance Systems Analysis Review (QASAR) audits, observations made during Operation SNAPSHOT, and to ensure continued operational safety in an ever-changing aircraft manufacturing environment (e.g., new technologies, automation, and co-production), FAA reviewed its certificate management process and implemented a series of new initiatives in its policies, regulations, and operations. Accordingly, FAA established a new comprehensive evaluation program to meet these initiatives, incorporating standardized evaluation practices and techniques consistent with the aircraft manufacturing environment and internationally-recognized guidelines. This program, the Aircraft Certification Systems

Evaluation Program (ACSEP), was detailed in draft Advisory Circular 21-ACSEP, August 17, 1992, and draft Order 8100. ACSEP, September 9, 1992. The advisory circular contained detailed guidance and criteria for evaluating all aspects of the manufacturer's performance. The detailed guidance and criteria will become part of the final order scheduled for issue during FY 1994. The ACSEP evaluations will evaluate manufacturers of priority parts at 24-month intervals, and manufacturers of non-priority parts at 48-month intervals. The ACSEP was initiated in September 1992 to replace QASAR. FAA established a FY 1993 schedule for ACSEP evaluation, and the Deputy Director of Aircraft Certification Service stated FAA was committed to achieving it. In fact, 211 evaluations were made in FY. 1993.

While it is too early to determine if FAA's initiatives will be effective in stopping the sale and use of unapproved aircraft parts, we agree the proposed actions, if properly implemented and enforced, may improve the level of industry compliance. Continued emphasis must be given to completing these initiatives and bring the industry into compliance with PMA regulations to ensure quality and safety of aircraft parts.

Internal Control Assessment

The four FAA Directorates had assessed the aircraft parts certification and surveillance process in 1992 as having low risk, and FAA made no supplemental reviews. In our opinion, the internal control weaknesses identified in this report meet DOT criteria for materiality and should be reported to the Secretary for inclusion in the annual report to the President and Congress as required by the Federal Managers' Financial Integrity Act of 1982. Department guidelines state internal control weaknesses should be reported to the Secretary when the weakness has or is likely to (i) prevent substantial achievement or an assessable unit's program objectives, (ii) have an adverse impact on the public or third parties, or (iii) result in adverse publicity or embarrassment to the Department which diminishes its credibility or reputation. While FAA has a system for issuing PMAs, the systemic problem identified with the production of unapproved aircraft parts demonstrates the system controls have not been effective. In addition to completing the many initiatives FAA has underway, FAA needs to develop a plan for taking enforcement action against manufacturers who produce replacement parts outside the FAA-approved system for use on certificated products.

Recommendations

We recommend the FAA Administrator:

1. Develop a plan for taking enforcement action against manufacturers who produce replacement aircraft parts outside the FAA-approved system for use on certificated products.
2. Report weaknesses cited in this report to the Secretary for inclusion in the annual report to the President and Congress as required by the Federal Managers' Financial Integrity Act of 1982.

Management Response

Management concurred with Recommendation 1 and will issue a memorandum to FAA field offices reinforcing their responsibility to take enforcement action against entities producing aircraft replacement parts without PMA or alternative approval. FAA will advise the public that FAA will make enforcement of Section 21.303 a high priority. FAA will also consider including standardized evaluation criteria and statements of conditions regarding suspected unapproved parts in the next revision of ACSEP. The first two actions are projected to be completed by the fourth quarter of FY 1994 and the revision of ACSEP is projected for the third quarter FY 1995.

FAA did not concur with Recommendation 2 that material internal control weaknesses exist with respect to the PMA process because of the positive steps FAA has taken to control the issuance of unapproved replacement parts. The complete text of management comments and OIG responses are appendices 1 and 2, respectively, to this report.

Auditor Comments

Actions planned in response to Recommendation 1 are reasonable. The planned actions are subject to the follow-up provisions of DOT Order 8000.1C.

Concerning Recommendation 2, it is our opinion, the internal control weaknesses should be reported until the planned corrective actions are completed. While changes initiated should reduce the number of parts produced outside the FAA-approved system, the production and sale of unapproved parts will not be effectively controlled until new guidelines are issued and Section 21.303 is strictly enforced. We ask FAA to reconsider its position and advise us in accordance with DOT Order 8000.1C.

Finding B. Listing Of Parts Manufacturer Approvals

The FAA listing of PMAs was incomplete and inaccurate. The purpose of the FAA PMA listing was unclear. While the current listing has not served a useful purpose, FAA needs to identify whether this information is needed by the public, and if so, develop a better means for providing comprehensive information on PMAs.

Discussion

The Regulatory Support Division (Division) of Flight Standards Service, located in Oklahoma City, Oklahoma, accumulated and maintained a listing of PMAs. Manufacturing Inspection District Offices submit copies of PMA approvals to the Division. The Division updated the approved parts listing and provided it to the Government Printing Office for publication on microfiche. FAA last published the listing in September 1992 showing PMAs valid through April 1992. The microfiche was previously updated in 1988, listing PMAs valid through June 1988. FAA planned to update the microfiche every 2 years.

FAA issued Advisory Circular 21.303-2H to the aviation public in October 1992, providing information on how to obtain a microfiche listing of PMAs. Despite this announcement, less than 200 copies of the latest microfiche were sold. In our opinion, this reflects the limited value of such a listing to an aviation industry of more than 7,000 FAA-licensed aircraft repair stations and commercial operators.

To evaluate the accuracy of the PMA listing, we reviewed a sample of 66 parts approved by the Van Nuys District Office. The District Office issued PMAs for these parts from 1973 to March 1992. The listing was inaccurate for 50 of the 66 parts. In total, 35 parts were not listed and 15 parts were listed under incorrect names because of changes in company ownership. For PMAs listed under obsolete company names, a user of the system would not know who is currently approved to manufacture the parts.

FAA had no procedure or control to ensure district offices forwarded and the Division received all PMAs. Guidelines had not been developed for (i) logging in and safeguarding approval letters on receipt, (ii) reconciling published listings with district office records, (iii) addressing PMA holders that changed names or went out-of-business, and (iv) keeping the listing up-to-date.

Standardization was also lacking. Some district offices submitted PMAs in three-column format while others submitted approvals in four-column format, and some did not identify part numbers in approval letters.

FAA officials acknowledged deficiencies with the listing and stated the purpose of the listing was unclear. FAA has asked the industry as a group to come up with a proposal for an FAA-PMA database (listing) that would meet its needs.

Recommendation

We recommend the FAA Administrator evaluate FAA and industry needs for comprehensive information on PMAs and develop appropriate means to meet those needs.

Management Response

Management concurred with the recommendation. FAA has met with industry representatives to discuss the concept of a comprehensive PMA database. FAA determined that a comprehensive PMA database would best be accomplished by a commercial activity. FAA asked the Aerospace Industries Association of America to chair an industry-wide team to determine (i) what information should be included and (ii) the appropriate delivery vehicle. The complete text of management comments and OIG responses are appendices 1 and 2, respectively, to this report.

Auditor Comments

Actions planned are reasonable. In accordance with DOT Order 8000.1C, please advise us of how the commercial development of a PMA database will be accomplished and provide a target implementation date. The planned actions are subject to the follow-up provisions of DOT Order 8000.1C.

EXHIBIT
(1 page)

AUDIT TEAM MEMBERS

The following is a list of team members who participated in the Audit of Parts Manufacturer Approval Process.

John L. Meche	Regional Manager, Region VI
James J. Kram	Project Manager
David A. Daffron	Auditor-in-Charge
Leroy C. Hill	Auditor
Alford R. Keener, Jr.	Auditor
Evelyn H. Norris	Administrative Support
LaRue Burks	Administrative Support

APPENDIX 1
(9 pages)

U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject INFORMATION: OIG Draft Survey Report on the Audit of the PMA Process

Date FEB 18 '94

From Assistant Administrator for Budget and Accounting

Reply to Attn. of

To Assistant Inspector General for Auditing

As requested by your December 13, 1993, memorandum, we have reviewed the subject Office of Inspector General (OIG) draft survey report. Our comments are provided in the attachments.

The audit and Federal Aviation Administration (FAA) reviews have identified a systemic problem with replacement aircraft parts being produced outside the FAA established parts manufacturer approval (PMA) process or one of the alternative approval processes. Further, the audit concluded the FAA listing of approved parts manufacturers was incomplete and inaccurate.

The report contains three recommendations. We concur with two recommendations and nonconcur with one recommendation. FAA's corrective actions already implemented or planned in response to the audit recommendations with which we concur are provided in attachment 1. Justification for our nonconcurrence is also provided in attachment 1. Comments of a clarification/editorial nature are provided in attachment 2.

We appreciate the opportunity to comment on your draft report and request that you incorporate our comments in any final report you may issue.

Nicholas S. Stoer

Attachments

Attachment 1

Federal Aviation Administration (FAA) Position on Recommendations Contained in the Office of Inspector General (OIG) Draft Survey Report on the Audit of the Parts Manufacturer Approval Process (PMA)

FINDING A: Parts Manufacturer Approval Process.

OIG and FAA reviews have identified a systemic problem with replacement aircraft parts being produced outside the FAA established PMA process or one of the alternative approval processes. Noncompliance with PMA regulations was attributed to a lack of knowledge of regulations and insufficient FAA enforcement. As a result, inventories of aircraft parts were contaminated with parts of unknown origin and unknown quality.

FAA Comment on Finding A: FAA disagrees that noncompliance with the PMA regulations is entirely attributed to a lack of knowledge of regulations and insufficient FAA enforcement. The FAA regulations and policies are written for the issuance and surveillance of PMA's. The presence of unapproved parts does not mean FAA surveillance and enforcement of PMA holders and/or other certificate holders is ineffective. Unapproved or suspected unapproved parts come from sources that hold no FAA approvals (i.e., from other than PMA holders).

The audit report acknowledges that FAA has significant initiatives planned and underway to address the issue of unapproved aircraft parts. Prior to the audit, FAA had identified areas to improve the PMA processes and to provide awareness to the aviation industry on suspected unapproved parts. The audit report cites these initiatives. One of the initiatives known as Phase III has been referred to the Aviation Rulemaking Advisory Committee (ARAC). This committee has been tasked to recommend interim policy and guidance to standardize the airworthiness determination for civil aircraft parts within the civil inventory which lack acceptable documentation. The committee has the option to recommend to FAA proposed rule changes for the issuance of a PMA or documentation that must accompany replacement parts prior to installation.

The FAA enforcement program described in FAA Order 2150.3A, Compliance and Enforcement Program, is equally applicable to all activities regulated by the agency. When violations involving the production of aircraft or replacement parts or the performance of aircraft maintenance occur, FAA personnel responsible for enforcing those regulations investigate, report, and process such matters for appropriate enforcement action. An example of this type of litigation is the matter of Pacific Sky Supply, Inc., C.P. Docket No. 91NM0319. FAA brought charges against Pacific Sky Supply for allegedly violating Federal Aviation Regulations (FAR) section 21.303(a) by producing replacement or modification parts without first obtaining a PMA.

On June 10, 1993, the FAA Acting Administrator issued FAA Order No. 93-19 that set the tone for statutory enforcement responsibilities and stated how FAA must establish that a person violated FAR section 21.303.

OIG Recommendation 1: Develop a plan for taking enforcement action against manufacturers who produce replacement aircraft parts for use on type-certificated products outside the FAA-approved system.

FAA Response: Concur. While FAA believes that existing enforcement policy and procedures are adequate, the Aircraft Certification Service (AIR) will re-emphasize the current guidance in FAA Order 2150.3A for enforcing FAR section 21.303 against those entities who do not hold a PMA or who are not otherwise authorized to produce parts. A memorandum will be issued to the FAA field offices reinforcing their responsibility to take enforcement action against entities producing aircraft replacement parts without the benefit of an FAA PMA or alternative approval. This guidance material is projected to be issued by the fourth quarter of fiscal year (FY) 1994.

AIR will propose a Federal Register policy statement advising the public that FAA will make the enforcement of FAR section 21.303 a high priority. Specifically targeted are those not having acquired a PMA under the provisions of PMA Phases I or II and unapproved parts found during normal surveillance or identification under FAA Order 8120.10, Suspected Unapproved Parts Program. Examples of FAR section 21.303(a) violations are described in FAA Order No. 93-19 (C.P. Docket No. 91NM0319). The proposed issuance date for this initiative is the fourth quarter of FY 1994.

AIR will also consider including standardized evaluation criteria and statements of conditions regarding suspected unapproved parts in the next revision of the Aircraft Certification System Evaluation Program (ACSEP).

This criteria will guide FAA evaluators to inquire or evaluate the suppliers' methods of controlling the shipment of aeronautical parts and material and to determine if unauthorized parts were shipped. If shipment of unauthorized parts or material is identified during the ACSEP, procedures in FAA Order 8120.10 must be followed. The revision of ACSEP is projected for the third quarter of FY 1995.

FAA has a history of addressing cases against manufacturers who produce unapproved or suspected unapproved parts. Cases reported to FAA via the FAA Form 8120-11, Suspected Unapproved Part Notification, or the Aviation Safety Hotline have influenced FAA to investigate and take action against certain entities to prevent the continued manufacture, distribution, or use of unapproved parts. Historically, investigations of entities that appear to be criminal in nature have been referred to Civil Aviation Security. This FAA organization works with other authorities such as OIG, the Federal Bureau of Investigation, Department of Defense, etc., to further investigate issues.

OIG Recommendation 2: Report weakness cited in this report to the Secretary for inclusion in the annual report to the President and Congress as required by the Federal Managers' Financial Integrity Act of 1982 (FMFIA).

FAA Response: Nonconcur. FAA does not concur that a material internal control weakness exists with respect to the PMA process or the enforcement actions against persons who do not hold certificates or approvals. OIG previously acknowledged that FAA has taken positive steps to control the issuance of unapproved replacement parts.

FAA has historically placed higher emphasis on taking enforcement actions against production approval holders. Initiatives are underway to reiterate our commitment to enforce the FAR's against persons who do not hold certificates or approvals. FAA internal memorandums and industry guidance material are being developed to disseminate this recommitment. The internal memorandums will be issued by March 31 and the industry guidance will be issued by the end of the fourth quarter of FY 1994.

While FAA cannot totally prevent the production and sale of unapproved aircraft parts, it clearly has safeguards in place under the "management control system" (the organizational structure, operating procedures, and administrative practices) to provide reasonable assurance that it complies with the FMFIA objectives.

FINDING B: Listing of Parts Manufacturer Approvals.

The audit report states that FAA's listing of PMA's was incomplete and inaccurate. The purpose of the FAA PMA listing was unclear. While the current listing has not served a useful purpose, FAA needs to identify whether this information is needed by the public, and if so, provide a better means for providing comprehensive information on PMA's.

OIG Recommendation: Evaluate FAA and industry needs for comprehensive information on PMA's and develop an appropriate means to meet those needs.

FAA Response: Concur. FAA's internal evaluation completed during the fourth quarter of FY 1993 found that the current system of the certificating office keeping the official records is satisfactory for meeting current internal requirements. In evaluating industry requirements, FAA has met with industry representatives to discuss the concept of a comprehensive PMA database. FAA has also been contacted by vendors who are interested in providing such a product.

FAA has determined that a comprehensive PMA database would best be accomplished by a commercial activity since the primary interest in a PMA database is external to FAA and commercial vendors have a sincere interest in providing such a product. FAA has asked the Aerospace Industries Association of America to chair an industry-wide team to determine the appropriate course of action, including: (a) what information should be included and (b) what is the appropriate delivery vehicle (e.g., on-line, distributed electronic media, microfiche, etc.). The team will submit their recommendations to the ARAC for further action. FAA will be participating on the team in order to identify future FAA needs that could be met by this effort. The team's final task will be to initiate the implementation process.

Attachment 2

Comments of a Clarification/Editorial Nature on the Office of Inspector General (OIG) Draft Survey Report on the Audit of the Parts Manufacturer Approval Process (PMA)

Page 4, Discussion. The third paragraph states that "The aviation industry has, however, ignored Federal requirements for obtaining PMAs from FAA." FAA believes this statement is much too broad and OIG has not presented sufficient data to indicate an industry-wide problem. The aviation industry (those entities holding FAA-approvals) have not ignored Federal requirements. On the contrary, the aviation industry has joined the FAA in identifying areas of concern and worked in partnership to develop awareness materials. FAA and the aviation industry are aware that some in the industry may not have the necessary approvals for replacement parts and are working together to rectify the situation. (a) *

The last sentence of the third paragraph states that "Generally, OEM parts produced and sold to other than certificate holders are not subject to the same quality control reviews and tests." FAA does not believe that the audit report substantiates this statement and recommends that the statement be deleted from the report. The original equipment manufacturer (OEM) that manufactures parts supplied to certificate holders is often responsible for the design, quality control, and testing of the parts. These OEM's have quality control reviews consistent with the production approval holder's quality requirements. (b)

The fourth paragraph states that "An audit of the FAA Mike Monroney Aeronautical Center (Report No. R6-FA-3-036, February 5, 1993) found about 39 percent of FAA's own inventory contained replacement aircraft parts not manufactured by, or traceable to, FAA-approved sources. An audit of 4 domestic and 10 foreign repair stations...disclosed similar results." In order for this data to be useful as an indicator of the extent of the unapproved parts issue, it is necessary to establish whether the large number of unapproved parts identified by OIG at FAA's facility in Oklahoma City is representative of the general and/or commercial aviation inventories. We do not believe that the PMA audit findings adequately support this generalization and we recommend that this subject be deleted from the draft audit report. (c)

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* See appendix 2 for corresponding OIG comments (a) through (i).

Page 5, Discussion. The first paragraph states that "FAA inspections disclosed similar results. During 1992, a team of FAA inspectors inspected five repair stations and one major commercial operator. These inspections were made in conjunction with an investigation of a California company that had produced modification or replacement aircraft parts without a PMA for those parts. The companies inspected had purchased unapproved parts... Findings of the team included:

> The sale and distribution of unapproved parts is quite extensive... In the procurement process, the cost and availability of parts are the overriding factors in determining what parts are procured by Repair Stations and Operators. Purchasing practices do not consider FAA-approved sources..."

We recommend that the subparagraph be deleted. This example which illustrates an unapproved parts issue inaccurately concludes that the PMA process is accountable for procurement decisions of repair stations. The responsibility to procure approved parts is clearly that of the repair station and not the PMA process.

FAA cannot stop the procurement of any parts whether it be for cost or availability. Repair stations and operators have a responsibility to purchase (d) and install parts on type certificated products that are airworthy and are in a condition for safe operation. The PMA process will not prevent the use of unreasonable business decisions in procurement processes.

Pages 5 through 6, Discussion. The third paragraph states that "FAA has known about the unapproved parts problem for years. The following excerpts from an FAA February 23, 1988, letter to a large aircraft parts supplier... While the letter presents a partial historical perspective of parts being manufactured without proper approval, the following October 13, 1992, message from the Director of Aircraft Certification Service shows both a continuing problem and concern with taking enforcement actions against OEM's supplying parts without PMA." The excerpts from letters and memorandums issued by FAA inspectors and the Director of AIR are examples of the need to improve the PMA process where OEM's obtain PMA's by licensing agreement from the production approval holder or by identicality. The AIR memorandum dated October 13, 1992, was written with the understanding that unapproved parts are not necessarily unsafe parts. Subsequently, PMA Phases I, II, and III initiatives were undertaken to preclude the creation of a market for unapproved parts or an arbitrary inflation of spare parts prices. AIR's memorandum mentions that the FAA field offices should encourage OEM's without a PMA to make application and obtain their PMA as outlined in the PMA notices.

The FAA has not stopped enforcing PMA requirements. The FAA is developing a series of notices that will reinforce the obligation of the OEM's to obtain FAA approval of OEM parts. (e)

Page 7, Discussion. The first paragraph states that "The existence of OEM unapproved parts is primarily attributed to lack of knowledge of the PMA requirements. Additionally, the sale and use of OEM parts without PMA have been sanctioned by an industry-wide attitude, including Production Certificate holders and users, that these parts were acceptable without PMA." Not all unapproved parts come from OEM's to the production certificate holders. There are documented cases were fraudulent and unapproved parts were manufactured by entities other than suppliers to the production certificate holder. In other cases, parts were legitimately produced for installation on other than type certificated products, but were procured by aviation end users. Further, the production certificate holders and end users of replacement parts have been actively involved with FAA in developing the suspected unapproved parts program. (f)

Page 8, Continuation of Survey Observations at Van Nuys District.
The second paragraph states that "The same Suspected Unapproved Parts report disclosed that the PMA holder had not performed supplier surveillance as required by the company's Quality Control Manual. We confirmed that although the PMA holder had since inspected the supplier, the company had not reviewed or scheduled reviews for several other suppliers. Also, two other PMA holders we visited did not complete supplier surveillance in accordance with FAA-approved quality control manuals."

Federal Aviation Regulations (FAR) section 21.303 does not require a PMA holder to perform supplier surveillance. Therefore, we recommend that statements relating to supplier surveillance for PMA holders be deleted from the audit report. If a PMA holder elects to include supplier surveillance in (g) its quality control manuals and it is not performed, FAA during certificate management reviews will take appropriate action.

The Aviation Rulemaking Advisory Committee Notice of Proposed Rulemaking working group is chartered with making recommendations for modernizing the FAR part 21, subparts F, G, K, L, and O requirements which are applicable to production approval holders. Specifically, the working group will recommend changes to three areas: (1) combining the three different quality control systems into one system, so that all products, parts, and appliances are produced under the requirements of the one system; (2) establishing general procedural requirements, eligibility, and responsibilities applicable to one production approval; and (3) developing uniform marking requirements for products, parts, and appliance, including components, subassemblies and spare parts, keeping the needs of end users and repairmen in mind. (h)

Page 8, Initiatives To Address Unapproved Parts Issue. The first paragraph states that "FAA Order 8120.10, Suspected Unapproved Parts Program, was issued in September 1993 to address management of the unapproved parts program." We recommend that the word "suspected" be inserted before the word "unapproved" in order to correctly cite the purpose of the order. (i)

APPENDIX 2
(2 pages)

OIG RESPONSE TO FAA CLARIFICATION/EDITORIAL COMMENTS

(a) Our use of the phrase aviation industry is not restricted to entities holding FAA approvals. OIG and FAA reviews cited in this report identified a systemic problem of producers and users of replacement aircraft parts operating outside the FAA-approved system.

(b) Sentence revised in final report.

(c) OIG audits of repair stations and FAA inspections, cited in the report, clearly show the large number of unapproved parts identified at FAA's facility in Oklahoma City is representative of aviation industry inventories. The FAA Associate Administrator for Regulation and Certification, in a meeting with OIG, estimated there were in excess of 20,000 suppliers producing and directly shipping hundreds of thousands of parts without approval or authority. The Associate Administrator estimated there were millions, if not billions of dollars of such parts on the shelves of operators, distributors or brokers, and repair stations.

(d) The example illustrates a manufacturer producing and selling replacement aircraft parts without a PMA or other authority. FAA regulations govern both the manufacturing (Title 14, Code of Federal Regulations (CFR), Part 21, Section 303) and use of replacement aircraft parts by repair stations (Title 14, CFR, Part 145). To effectively control the production and use of replacement aircraft parts, FAA must enforce its regulations at both the production and user levels. This report addresses FAA oversight and enforcement of manufacturing regulations as carried out by FAA Manufacturing Inspection District Offices. A separate OIG report (Report No. R4-FA-4-009) addresses FAA oversight of repair stations as carried out by FAA Flight Standards District Offices.

(e) Since 1991 FAA's efforts to address the unapproved parts issue has primarily focused on educating and encouraging compliance with FAA Section 21.303 requirements. While we support such actions, FAA should also develop a plan for taking enforcement action against manufacturers that continue to produce parts outside the FAA-approved system. FAA concurred.

(f) We agree all unapproved parts do not come from OEMs.

(g) The PMA holders cited in our report were required to conduct supplier surveillance reviews in accordance with the FAA-approved quality control manuals. The FAA inspectors accompanying us on these field visits confirmed these findings and appropriately advised company officials.

(h) We agree with these recommended changes. Related recommendations are included in OIG Report No. R4-FA-4-009.

(i) Suggested change made.

REPORT ON SURVEY OF FAA SURVEILLANCE OF FOREIGN MANUFACTURED AIRCRAFT PARTS

REPORT NUMBER: R0-FA-4-001
DATE ISSUED: November 8, 1993

U.S. Department of
Transportation
Office of Inspector General

Survey of Surveillance of Foreign Manufactured Aircraft Parts

Federal Aviation Administration

Report No. R0-FA-4-001 *November 8, 1993*

SYNOPSIS

Objectives

The objective of the survey was to evaluate the effectiveness of FAA's surveillance and approval process for accepting foreign manufactured aircraft parts.

Conclusions

Although FAA has established well defined supplier surveillance procedures, it has not followed its procedures in identifying priority parts and determining the need to perform surveillance of foreign suppliers. This condition exists because inspection resources are not available to identify suppliers of priority parts or perform surveillance of foreign suppliers to the extent required by FAA's production approval and surveillance procedures. As a result, FAA had no reasonable assurance that foreign manufactured priority parts were manufactured or inspected in accordance with applicable procedures or approved designs.

Monetary Impact

This is no direct monetary impact of finding or recommendations. The benefit of our recommended actions will be a higher degree of assurance that foreign manufactured parts conform to approved designs and are safe for aviation use.

Recommendations

We recommended FAA (1) determine what resources are needed to identify and perform surveillance of foreign manufactured aircraft parts and, if necessary, request Congress to fund additional resources, (2) require its inspection offices to use Foreign Civil Air Authorities, whenever practical, to perform surveillance of foreign manufacturers, and (3) report our findings for inclusion in the Secretary's annual report to the President and the Congress under the Federal Managers' Financial Integrity Act of 1982.

Management Position

The Assistant Administrator for Budget and Accounting agreed with Recommendations 1 and 2. He stated FAA will determine the resources needed for performing surveillance over foreign manufactured parts and to seek legislative relief to enable FAA to charge U.S. manufacturers for surveillance of foreign manufactured parts. For Recommendation 3, he did not agree to report our finding to the Secretary as a material internal control weakness. He stated FAA has reasonable assurances supplier parts and services, both foreign and domestic, are manufactured to an FAA-approved type design and are in safe operating condition.

Office of Inspector General Comments

FAA's response to Recommendation 1 is fully responsive and is considered resolved. Although FAA agreed with the Recommendation 2, its comments indicated corrective action may be minimal and ineffective. We asked FAA to provide additional details to enable us to close this recommendation. FAA disagreed with Recommendation 3 and insisted there was no material weakness. We continue to be of the opinion that since FAA considered the issue of foreign manufactured aircraft significant enough to warrant elaborate and specific management controls, the absence of adherence to those controls is a reportable material weakness.

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Memorandum

Subject: ACTION: Survey Report on FAA Surveillance of Foreign Manufactured Aircraft Parts, Report No. R0-FA-4-001

Date: November 8, 1993

From: A. Mary Schiavo
Inspector General
Mary Schiavo

Reply to Attn of:

To: Federal Aviation Administrator

I. INTRODUCTION

This is our report on the survey of the Federal Aviation Administration's (FAA) surveillance of foreign manufactured aircraft parts. The objective of the audit was to evaluate the effectiveness of FAA's surveillance and approval process for accepting foreign manufactured aircraft parts.

Background

FAA Order 8120.2A requires FAA to perform surveillance over manufacturers and suppliers. The Order states, "All manufacturers which hold an FAA production approval are subject to FAA surveillance." FAA surveillance is to be conducted as necessary, as specified in the FAA Act of 1958. Surveillance serves to ensure that holders of FAA production approvals manufacture products/parts in conformity with FAA-approved designs. It is, therefore, the responsibility of the manufacturing inspection organization within FAA to conduct surveillance necessary to ensure manufacturers (including suppliers) remain in compliance with pertinent rules which govern the manufacture of its products/parts. The manufacturing inspection organization is also responsible for identifying unsatisfactory conditions and for ensuring that prompt corrective actions are taken when necessary.

Within the FAA, four aircraft certification directorates are responsible for performing surveillance over manufacturers and suppliers. They are the Engine and Propeller, Small Airplane, Rotorcraft, and Transport Airplane Directorates. Under these directorates, Manufacturing Inspection District Offices are responsible for (i) evaluating and approving manufacturers' controls over their suppliers; (ii) ensuring approved controls are being implemented by manufacturers and their suppliers; (iii) determining the need for FAA supplier surveillance; (iv) initiating enforcement actions against manufacturers for violations, including violations at their suppliers facilities; and (v) notifying manufacturers of all unsatisfactory conditions noted at any of their supplier facilities.

Collectively, the four directorates are responsible for approximately 1400 manufacturers holding production approval certificates (production approval holders). Although FAA has not determined the precise number of suppliers for these manufacturers, a 1989 FAA consultant study, Operation Snapshot, estimated 15,000 domestic suppliers existed and indicated the number of foreign suppliers, while unknown, was increasing.

Scope

Our survey covered the period April 1988 through September 1992 and was conducted in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States. We reviewed applicable laws, regulations, policies, and procedures and confirmed FAA policy for surveillance of foreign suppliers with FAA's Associate Administrator for Regulation and Certification. We evaluated records, reports, and other data to determine the level of supplier surveillance conducted by FAA. We evaluated management controls over foreign manufactured parts to determine their adequacy in promoting compliance with Federal laws and regulations.

We curtailed our audit at the completion of survey, after the Associate Administrator for Regulation and Certification confirmed FAA was not conducting surveillance of foreign manufactured parts. Accordingly, our report is based on the survey work performed at FAA Headquarters, Washington DC, and at only one of the four directorates, the Transport Aircraft Directorate in Seattle, Washington. Our work at the directorate included visits to its Manufacturing Inspection Offices in Seattle, Washington, Phoenix, Arizona, and Long Beach and Van Nuys, California. We also visited six production approval holders: Boeing Airplane Company, Douglas Aircraft Company, Garrett Engine Division, McDonnell Douglas Helicopter Company, Twin Commander Aircraft Corp., and Taijin Seiki Inc. Our survey was conducted during the period February to September 1992.

Prior Audit Coverage

Office of Inspector General (OIG) Management Advisory Memorandum, RO-FA-8-112, FAA Surveillance of Foreign Suppliers for U. S. Aircraft Manufacturers, dated April 1987, advised FAA of weaknesses in (i) production approval holders controls over foreign suppliers, (ii) direct shipments of parts from foreign suppliers to users, and (iii) FAA's foreign supplier surveillance procedures. The review was terminated during survey because FAA initiated Operation Snapshot, a study that had objectives similar to those for the OIG audit.

In response to Operation Snapshot, FAA agreed to revise certain Federal Aviation Regulations (FAR) and guidance materials that (i) were outdated, open to differing interpretations, and inconsistent between different types of production approval holders and (ii) did not adequately address the growing internationalization of the industry. FAA's planned revisions to the FARs were being drafted at the completion of our current survey.

Concerning Operation Snapshot's findings about inadequate surveillance over the aircraft manufacturing industry, FAA proposed to devote more workforce time toward surveillance. Planned corrective actions to record and monitor surveillance activities included developing and implementing programs to (i) automatically map Aircraft Certification Regulatory Program workload so that managers can identify workload volume by geographic location, (ii) provide management with an information system for identifying resource needs, and (iii) provide workload information for management analyses. FAA established a completion date of Fiscal Year 1993 for these programs.

FINDING AND RECOMMENDATIONS

Finding. Foreign Supplier Surveillance

Although FAA has established well defined supplier surveillance procedures, it has not followed its procedures in identifying priority parts and determining the need to perform surveillance of foreign suppliers. This condition exists because inspection resources are not available to identify suppliers of priority parts or perform surveillance of foreign suppliers to the extent required by FAA's production approval and surveillance procedures. As a result, FAA had no reasonable assurance that foreign manufactured priority parts were manufactured or inspected in accordance with applicable procedures or approved designs.

Discussion

Surveillance of Priority Parts. FAA Order 8120.2A places emphasis on surveillance of priority parts. The Order states, "We recognize that every facet of aircraft production and operation can have an impact on safety. However, with our limited surveillance resources, we must maximize our surveillance efforts and concentrate on those facets which would most benefit safety. Therefore, we have elected to focus our surveillance efforts on those priority parts . . . which, if they were to fail, could reasonably be expected to cause an unsafe condition in the end product. Examples of such parts would be: auto-pilots, turbine discs/blades, main shaft bearings, wing/flap assemblies, etc." Further, in describing the FAA principal inspectors responsibilities, the Order states, "Regardless of the source, priority parts should be given special emphasis during all facets of FAA surveillance activities."

At the four Transport Airplane Directorate inspection offices visited, we found FAA inspectors were not identifying priority parts provided to production approval holders by foreign suppliers. Also, as of July 8, 1992, these offices' inspection plans did not show any foreign suppliers scheduled for surveillance through May 1996.

Alternate Methods of Surveillance. We found no evidence the inspection offices were using other acceptable methods of assuring the quality of foreign manufactured parts, which would decrease the need for FAA inspection resources. FAA Order 8120.2A states, "There are three acceptable methods for a U.S. manufacturer to utilize the services of a foreign supplier. They are as follows: (1) . . . The manufacturer may use a foreign supplier subject to the components provisions of bilateral airworthiness agreements . . . ; (2) . . . The manufacturer may also utilize foreign suppliers when the FAA has determined the parts/services being produced can be completely inspected at manufacturer's U.S. facility; . . . (3) . . . The manufacturer may also use foreign suppliers when it has . . . established and documented in its quality control manual or other quality assurance policy material, the procedures which specifically identify the manner in which its foreign suppliers are qualified and approved, and the system that the manufacturer has in place ensures conformity and condition for safe operation of the articles produced by the suppliers. This system must be FAA-approved and its implementation at a supplier facility is subject to audit by the FAA or its representative . . . ."

The Transport Airplane Directorate was not using the services of cognizant Foreign Civil Air Authorities (FCAA) under the provision of bilateral agreements to conduct foreign supplier surveillance. However, the directorate ordered its district offices to provide oversight of domestic suppliers on behalf of certain foreign countries. For example, FAA inspection personnel conducted surveillance of six domestic suppliers on behalf of the French Civil Air Authority. Although FAA believes it does not have sufficient inspection resources to conduct surveillance of priority parts, inspection services were provided to the French Civil Air Authority without compensation or consideration of services in kind.

Also, the Transport Airplane Directorate was not always determining whether foreign parts were inspectable at the production approval holders' facilities. FAA Order 8120.2A states, "It should not normally be necessary to conduct any surveillance at a supplier facility when the manufacturer can and does make all conformity and safety determinations of parts or materials upon receipt . . . ." We found two of the six production approval holders surveyed were receiving foreign parts even though FAA had not determined the parts were completely inspectable at their facilities. Further, the Transport Airplane Directorate had not approved these two production approval holders' quality assurance procedures and systems for foreign suppliers.

Inspection Resources. We met with FAA's Associate Administrator for Regulation and Certification to confirm current policy applicable to foreign supplier surveillance. He advised us that inspection resources are not available to identify either domestic or foreign suppliers of priority parts or conduct supplier surveillance. He also stated that, due to limited resources, he would not expect FAA inspectors to (i) approve changes to production approval holders' quality control systems prior to implementation and (ii) determine whether foreign parts were inspectable at the production approval holders' facilities.

The Associate Administrator also advised us the Aircraft Certification Service has not determined the level of inspection resources needed, developed an annual plan to prioritize utilization of existing resources, or implemented a system to record the actual utilization of inspection personnel. He said, such a system (Integrated Resource Information System) was being developed. FAA plans to implement this system by the end of Fiscal Year 1994.

Surveillance of foreign manufactured aircraft parts is a critical internal control required by FAA to attain a level of assurance that priority parts are airworthy. In our opinion, FAA's lack of surveillance over foreign suppliers is a material weakness in this established internal control. Without adequate surveillance over foreign manufactured parts, the safety assurances intended by FAA Order 8120.2A cannot be achieved. In our opinion, the weakness of this internal control meets the Office of Management and Budget criteria for materiality and should be included in the Secretary's annual report to the President and the Congress as required by the Federal Managers' Financial Integrity Act of 1982.

Recommendations

We recommend the FAA Administrator:

1. Determine the resources needed for identifying and surveilling priority foreign manufactured parts as required by FAA Order 8120.2A and, if necessary, request Congress to provide funds to obtain additional resources needed for accomplishing this surveillance.

2. Require FAA inspection offices to use the services of Foreign Civil Air Authorities, whenever practical.

3. Report the inability to fully implement established production approval and surveillance procedures under FAA Order 8120.2A to the Secretary for inclusion in the Secretary's annual report to the President and the Congress as required by the Federal Manager's Financial Integrity Act of 1982.

Management Response

The Assistant Administrator for Budget and Accounting concurred with recommendations 1 and 2 in his June 10, 1993 response to our draft report of April 2, 1993; he advised the following corrective actions were taken or planned regarding the findings and recommendations.

In response to recommendation 1, (i) a team has been chartered to draft comprehensive policy, procedures, and guidance for all domestic and international suppliers; (ii) revisions to Advisory Circular 21-20, Supplier Surveillance Procedures, were initiated; and (iii) a new staffing guide is being developed for Aircraft Certification Service safety inspectors.

In response to recommendation 2, FAA said its inspection offices are using FCAA services to the maximum extent possible, considering (i) supplier surveillance agreements between FAA and FCAAs are strictly courtesy, not mandatory; and (ii) not all FCAAs have sufficient resources to perform necessary surveillance. Concerning our finding FAA surveilled domestic suppliers in the United States for the French Civil Authority without compensation or in-kind consideration, FAA responded the activity was limited, and did not require additional FAA resources. Finally, FAA is seeking relief from 334 of U.S. Code, Title 49, to allow it to charge U.S. manufacturers for costs incurred in performing surveillance of foreign suppliers. Completion of additional FAA action associated with recommendation 2 is predicated on the passage of legislation enabling FAA to obtain reimbursement from U.S. manufacturers.

The Assistant Administrator for Budget and Accounting did not agree with recommendation 3 to report our findings as a material internal control weakness. Instead he maintained FAA has reasonable assurances that supplier parts and services, both foreign and domestic, are manufactured to an FAA-approved type design and are in safe operating condition. He indicated that (i) production approval holders, as a prerequisite to FAA production approval, have inspection/quality control systems which ensure parts and components produced by suppliers conform to approved design data and are in safe operating condition; and (ii) neither the Aircraft Certification Service nor the audit staff has evidence of safety concerns regarding foreign manufactured parts. His response is included in its entirety as the appendix to this report.

Audit Comments

We consider FAA's response to recommendation 1 fully responsive, and no further reply concerning this recommendation is necessary. Although the Assistant Administrator for Budget and Accounting concurred with recommendation 2, he indicated FAA is using the services of FCAAs to the maximum extent possible. During our audit, however, we found no evidence that the Transport Airplane Directorate had ever requested FCAAs to conduct surveillance of foreign suppliers on its behalf. For this recommendation, we still maintain that FAA should increase its efforts to use FCAAs.

Concerning recommendation 3, we disagree that FAA has reasonable assurances that priority foreign parts conform to approved designs and are safe for aviation use. In fact, the FAA was not able to provide evidence supporting this conclusion. The FAA manual states this surveillance serves to ensure priority parts conform to approved designs and are safe for aviation use. This surveillance is particularly necessary for foreign parts that cannot be inspected upon receipt at the U.S. manufacturers' facilities. In our opinion, if FAA deems surveillance over production of priority foreign parts is not necessary, especially when the parts cannot be inspected upon receipt at the U.S. manufacturer's facility, it should change its inspection requirements and procedures to reflect this decision. Otherwise, the FAA should report its inability to conduct out-of-country surveillance of the quality of priority foreign parts as a material internal control weakness. Without surveillance, FAA does not have assurance that a manufacturer's FAA-approved quality control system for foreign parts will be properly implemented and maintained at the foreign parts manufacturer's facilities.

III. ACTION REQUIRED

FAA's actions taken or planned for recommendation 1 are fully responsive, and no further response is necessary. We consider FAA's proposed corrective action for recommendation 2 to be responsive. To enable us to close this recommendation, please provide details of the frequency of FCAA's surveillance of foreign suppliers on behalf of the FAA. We request FAA to reconsider its position on recommendation 3. In accordance with Department of Transportation Order 8000.1C, please provide your written response to this office within 60 days of this report. The corrective actions taken and planned by the FAA are also subject to the audit followup provisions of this Order.

A copy of this report will be forwarded to the OMB Circular A-123 coordinator in FAA and the Department because of the material internal control weakness reported.

I appreciate the courtesy and cooperation extended to my staff during the audit. If I can answer any questions or be of any further assistance, please feel free to call me on 366-1959 or my Deputy, Mario A. Lauro, Jr., on 366-6767.

EXHIBIT

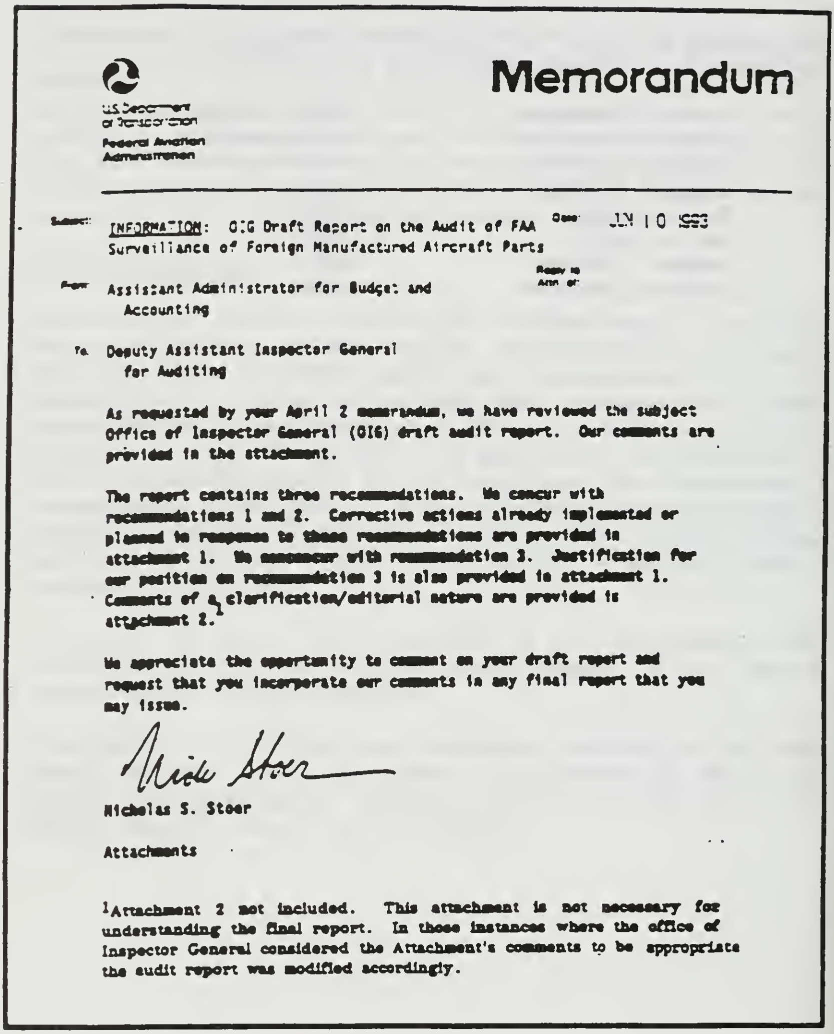
AUDIT TEAM MEMBERS

The following is a list of team members who participated in the Survey of FAA Surveillance of Foreign Manufactured Aircraft Parts.

Ronald W. Hambrick	Regional Manager
Gerald C. Schmitz	Project Manager
Richard L. Bitzer	Auditor-In-Charge
Greggory S. Bond	Auditor
Patricia Hendrix	Auditor
Earl G. Kindley	Auditor
Barbara J. Williams	Auditor
Susan M. Zimmerman	Auditor

MANAGEMENT COMMENTS

APPENDIX
(6 pages)



U.S. Department of Transportation
Federal Aviation Administration

Memorandum

Subject: INFORMATION: OIG Draft Report on the Audit of FAA Surveillance of Foreign Manufactured Aircraft Parts

Date: JUN 10 1993

From: Assistant Administrator for Budget and Accounting

Reply to Attn of:

To: Deputy Assistant Inspector General for Auditing

As requested by your April 2 memorandum, we have reviewed the subject Office of Inspector General (OIG) draft audit report. Our comments are provided in the attachment.

The report contains three recommendations. We concur with recommendations 1 and 2. Corrective actions already implemented or planned in response to these recommendations are provided in attachment 1. We nonconcur with recommendation 3. Justification for our position on recommendation 3 is also provided in attachment 1. Comments of a clarification/editorial nature are provided in attachment 2.[1]

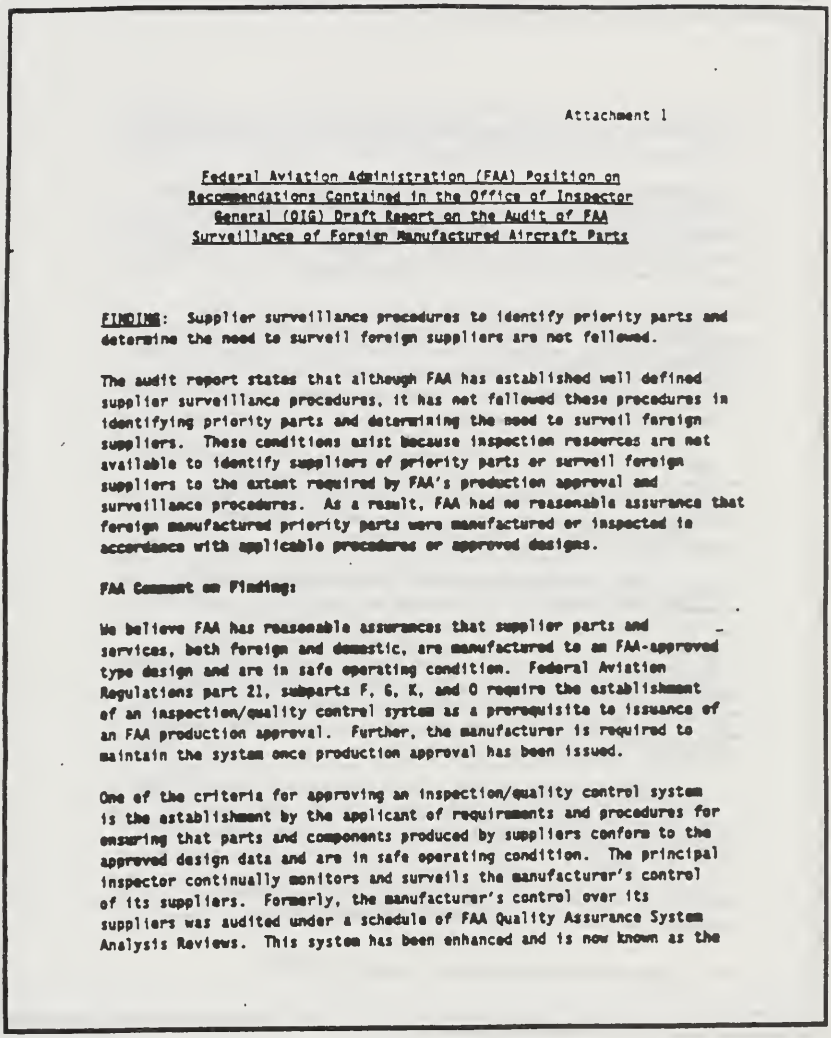
We appreciate the opportunity to comment on your draft report and request that you incorporate our comments in any final report that you may issue.

Nick Stoer

Nicholas S. Stoer

Attachments

[1] Attachment 2 not included. This attachment is not necessary for understanding the final report. In those instances where the office of Inspector General considered the Attachment's comments to be appropriate the audit report was modified accordingly.



Attachment 1

Federal Aviation Administration (FAA) Position on Recommendations Contained in the Office of Inspector General (OIG) Draft Report on the Audit of FAA Surveillance of Foreign Manufactured Aircraft Parts

FINDING: Supplier surveillance procedures to identify priority parts and determine the need to surveil foreign suppliers are not followed.

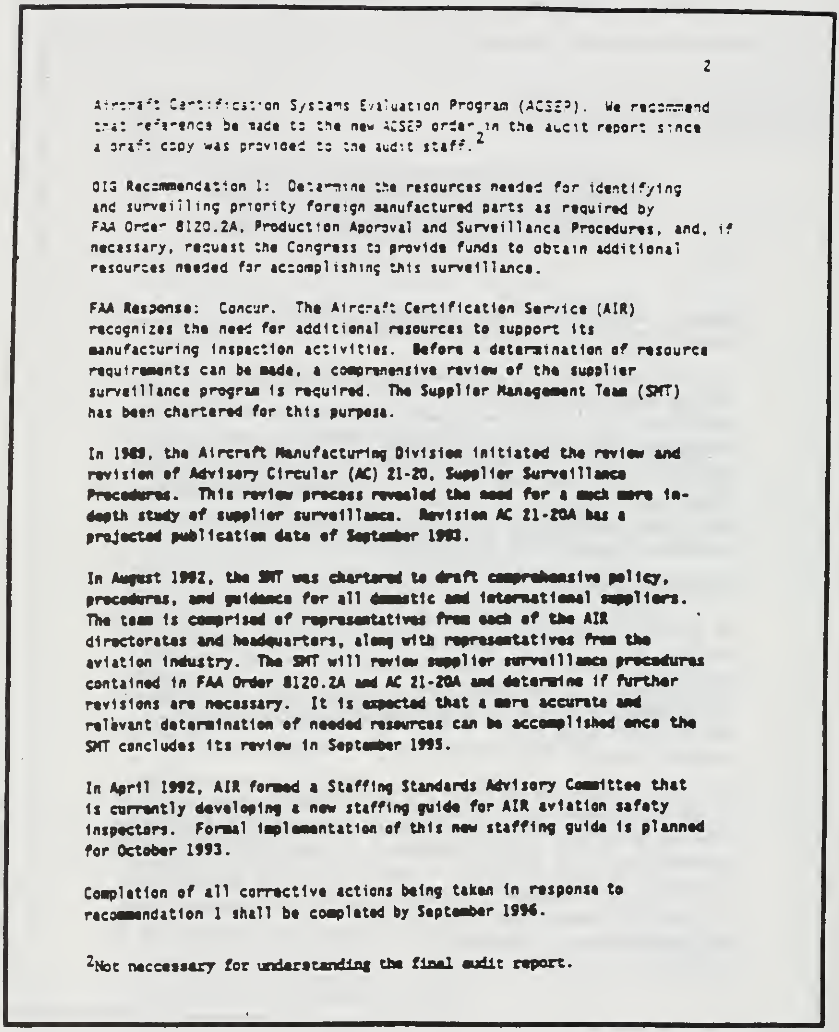
The audit report states that although FAA has established well defined supplier surveillance procedures, it has not followed these procedures in identifying priority parts and determining the need to surveil foreign suppliers. These conditions exist because inspection resources are not available to identify suppliers of priority parts or surveil foreign suppliers to the extent required by FAA's production approval and surveillance procedures. As a result, FAA had no reasonable assurance that foreign manufactured priority parts were manufactured or inspected in accordance with applicable procedures or approved designs.

FAA Comment on Finding:

We believe FAA has reasonable assurances that supplier parts and services, both foreign and domestic, are manufactured to an FAA-approved type design and are in safe operating condition. Federal Aviation Regulations part 21, subparts F, G, K, and O require the establishment of an inspection/quality control system as a prerequisite to issuance of an FAA production approval. Further, the manufacturer is required to maintain the system once production approval has been issued.

One of the criteria for approving an inspection/quality control system is the establishment by the applicant of requirements and procedures for ensuring that parts and components produced by suppliers conform to the approved design data and are in safe operating condition. The principal inspector continually monitors and surveils the manufacturer's control of its suppliers. Formerly, the manufacturer's control over its suppliers was audited under a schedule of FAA Quality Assurance System Analysis Reviews. This system has been enhanced and is now known as the

MANAGEMENT COMMENTS



Aircraft Certification Systems Evaluation Program (ACSEP). We recommend that reference be made to the new ACSEP order[2] in the audit report since a draft copy was provided to the audit staff.[2]

OIG Recommendation 1: Determine the resources needed for identifying and surveilling priority foreign manufactured parts as required by FAA Order 8120.2A, Production Approval and Surveillance Procedures, and, if necessary, request the Congress to provide funds to obtain additional resources needed for accomplishing this surveillance.

FAA Response: Concur. The Aircraft Certification Service (AIR) recognizes the need for additional resources to support its manufacturing inspection activities. Before a determination of resource requirements can be made, a comprehensive review of the supplier surveillance program is required. The Supplier Management Team (SMT) has been chartered for this purpose.

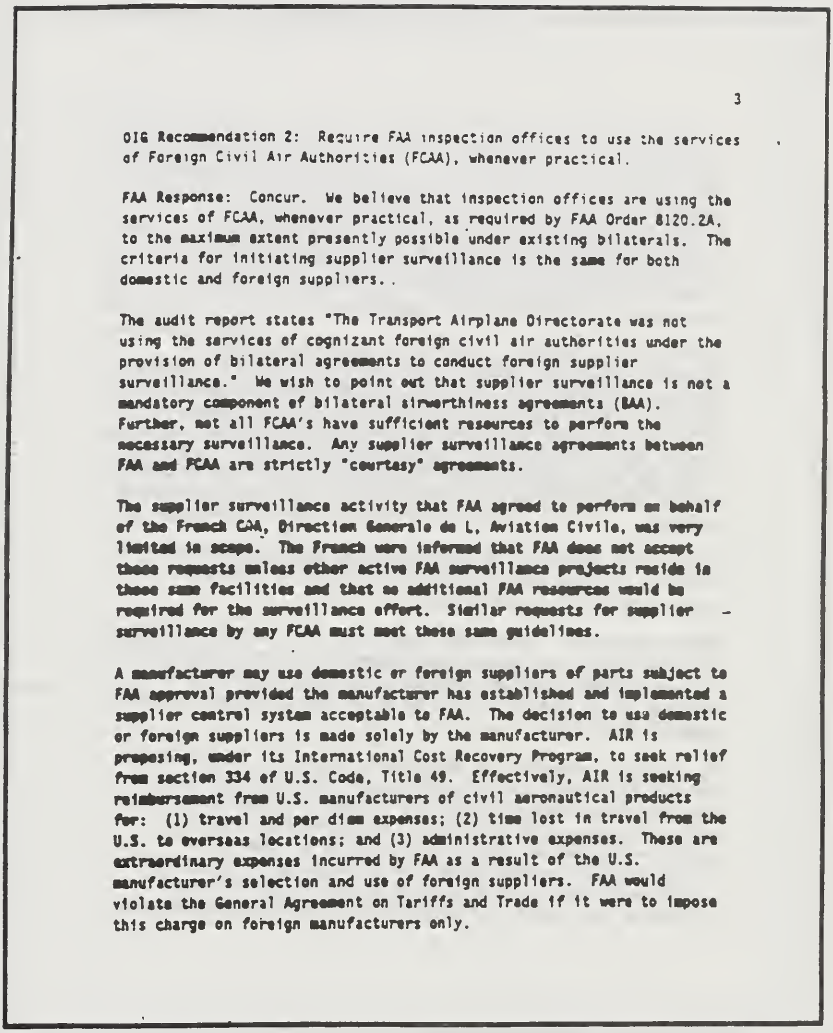
In 1989, the Aircraft Manufacturing Division initiated the review and revision of Advisory Circular (AC) 21-20, Supplier Surveillance Procedures. This review process revealed the need for a much more in-depth study of supplier surveillance. Revision AC 21-20A has a projected publication date of September 1993.

In August 1992, the SMT was chartered to draft comprehensive policy, procedures, and guidance for all domestic and international suppliers. The team is comprised of representatives from each of the AIR directorates and headquarters, along with representatives from the aviation industry. The SMT will review supplier surveillance procedures contained in FAA Order 8120.2A and AC 21-20A and determine if further revisions are necessary. It is expected that a more accurate and relevant determination of needed resources can be accomplished once the SMT concludes its review in September 1995.

In April 1992, AIR formed a Staffing Standards Advisory Committee that is currently developing a new staffing guide for AIR aviation safety inspectors. Formal implementation of this new staffing guide is planned for October 1993.

Completion of all corrective actions being taken in response to recommendation 1 shall be completed by September 1996.

[2] Not neccessary for understanding the final audit report.



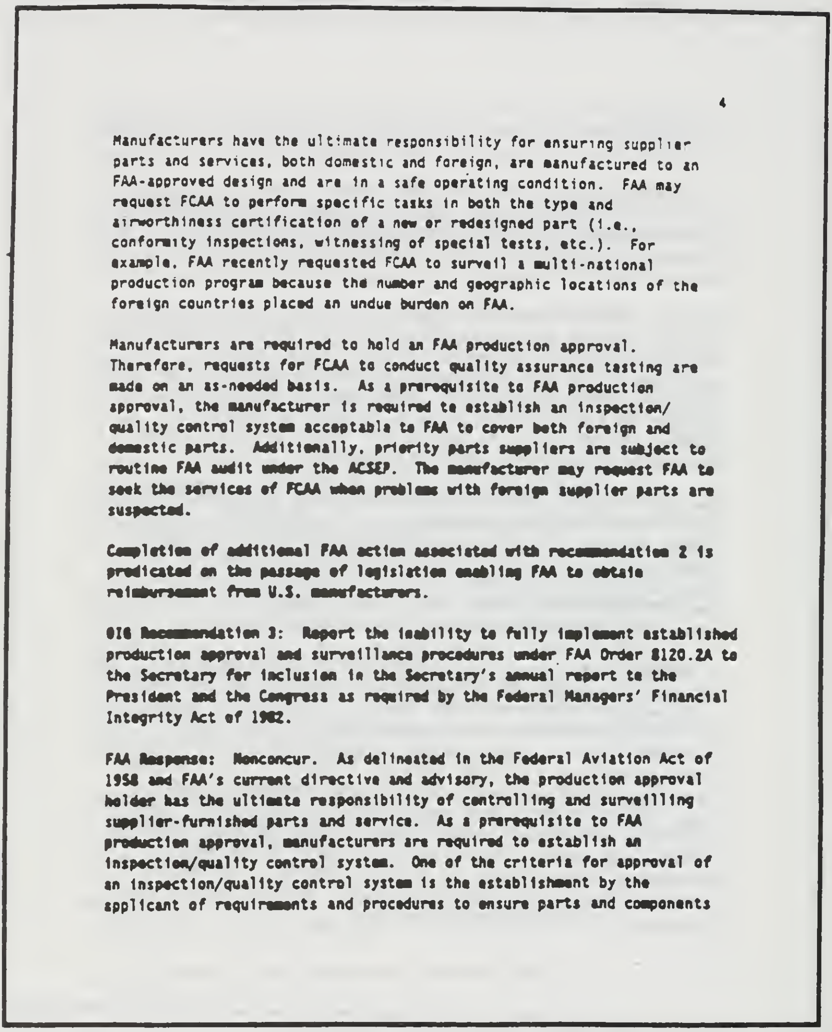
OIG Recommendation 2: Require FAA inspection offices to use the services of Foreign Civil Air Authorities (FCAA), whenever practical.

FAA Response: Concur. We believe that inspection offices are using the services of FCAA, whenever practical, as required by FAA Order 8120.2A, to the maximum extent presently possible under existing bilaterals. The criteria for initiating supplier surveillance is the same for both domestic and foreign suppliers..

The audit report states "The Transport Airplane Directorate was not using the services of cognizant foreign civil air authorities under the provision of bilateral agreements to conduct foreign supplier surveillance." We wish to point out that supplier surveillance is not a mandatory component of bilateral airworthiness agreements (BAA). Further, not all FCAA's have sufficient resources to perform the necessary surveillance. Any supplier surveillance agreements between FAA and FCAA are strictly "courtesy" agreements.

The supplier surveillance activity that FAA agreed to perform on behalf of the French CAA, Direction Generale de L, Aviation Civile, was very limited in scope. The French were informed that FAA does not accept these requests unless other active FAA surveillance projects reside in those same facilities and that no additional FAA resources would be required for the surveillance effort. Similar requests for supplier surveillance by any FCAA must meet these same guidelines.

A manufacturer may use domestic or foreign suppliers of parts subject to FAA approval provided the manufacturer has established and implemented a supplier control system acceptable to FAA. The decision to use domestic or foreign suppliers is made solely by the manufacturer. AIR is proposing, under its International Cost Recovery Program, to seek relief from section 334 of U.S. Code, Title 49. Effectively, AIR is seeking reimbursement from U.S. manufacturers of civil aeronautical products for: (1) travel and per diem expenses; (2) time lost in travel from the U.S. to overseas locations; and (3) administrative expenses. These are extraordinary expenses incurred by FAA as a result of the U.S. manufacturer's selection and use of foreign suppliers. FAA would violate the General Agreement on Tariffs and Trade if it were to impose this charge on foreign manufacturers only.



Manufacturers have the ultimate responsibility for ensuring supplier parts and services, both domestic and foreign, are manufactured to an FAA-approved design and are in a safe operating condition. FAA may request FCAA to perform specific tasks in both the type and airworthiness certification of a new or redesigned part (i.e., conformity inspections, witnessing of special tests, etc.). For example, FAA recently requested FCAA to surveil a multi-national production program because the number and geographic locations of the foreign countries placed an undue burden on FAA.

Manufacturers are required to hold an FAA production approval. Therefore, requests for FCAA to conduct quality assurance testing are made on an as-needed basis. As a prerequisite to FAA production approval, the manufacturer is required to establish an inspection/quality control system acceptable to FAA to cover both foreign and domestic parts. Additionally, priority parts suppliers are subject to routine FAA audit under the ACSEP. The manufacturer may request FAA to seek the services of FCAA when problems with foreign supplier parts are suspected.

Completion of additional FAA action associated with recommendation 2 is predicated on the passage of legislation enabling FAA to obtain reimbursement from U.S. manufacturers.

OIG Recommendation 3: Report the inability to fully implement established production approval and surveillance procedures under FAA Order 8120.2A to the Secretary for inclusion in the Secretary's annual report to the President and the Congress as required by the Federal Managers' Financial Integrity Act of 1982.

FAA Response: Nonconcur. As delineated in the Federal Aviation Act of 1958 and FAA's current directive and advisory, the production approval holder has the ultimate responsibility of controlling and surveilling supplier-furnished parts and service. As a prerequisite to FAA production approval, manufacturers are required to establish an inspection/quality control system. One of the criteria for approval of an inspection/quality control system is the establishment by the applicant of requirements and procedures to ensure parts and components

MANAGEMENT COMMENTS

produced by suppliers conform to approved design data and are in safe operating condition. FAA performs whatever surveillance is necessary to fulfill its oversight function.

Based upon the above facts, and the absence of empirical data, it is extremely difficult to see how "FAA's lack of surveillance over foreign suppliers is a material weakness." AIR has no evidence of safety concerns regarding foreign manufactured parts. Further, the audit staff made no verification of product to type design to determine whether foreign manufactured parts meet the type design and are in safe operating condition.

Determining the need for supplier surveillance is fully outlined in FAA Order 8120.2A. Actual on-site surveillance of a foreign supplier is a discretionary, not mandatory, requirement. FAA can accomplish foreign supplier surveillance without regularly scheduled supplier audits by concentrating resources at the domestic manufacturer's facility. Determining a manufacturer's compliance with pertinent rules governing the manufacture of its parts can be made through certificate management of the manufacturer's FAA approved supplier control system.

REPORT ON AUDIT OF PRICING OF AIRCRAFT PARTS

FEDERAL AVIATION ADMINISTRATION

REPORT NUMBER: R6-FA-3-036
DATE ISSUED: FEBRUARY 5, 1993

U.S. Department of Transportation
Office of Inspector General

Pricing of Aircraft Parts

Federal Aviation Administration

Report Number: R6-FA-3-036 *February 5, 1993*

SYNOPSIS

Objectives

Our objectives were to determine whether (i) Federal Aviation Administration (FAA) was paying reasonable prices for aircraft parts, (ii) the Administrator's hotline was effective for resolving pricing complaints, and (iii) only valid and properly-certified parts were purchased.

Conclusion

Prices paid for aircraft parts were consistent with prices paid by other aircraft owners, and only one pricing complaint was made on the Administrator's hotline. However, aircraft parts not conforming to current aircraft certification requirements were installed on FAA aircraft, FAA paid for aircraft parts it cannot now use, and the Office of Aviation System Standards (AVN) did not report suspected unapproved parts for investigation.

Monetary Impact

The report identified an estimated $3.5 million was spent on aircraft parts that FAA cannot now use.

Recommendations

This report contains seven recommendations to: clarify FAA policy on acquiring and using certified aircraft parts; improve internal control procedures; provide training for contracting officers, inventory managers, and Quality Control Inspectors; dispose of unapproved parts; and report suspected unapproved parts for investigation.

Management Position

AVN and Aeronautical Center management concurred with all recommendations.

Office of Inspector General Comments

Actions taken or planned were reasonable.

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Memorandum

Subject: ACTION: Report On Audit Of Pricing Of Aircraft Parts Report Number R6-FR-3-036

Date: February 5, 1993

From: John L. Meche JMeche
Regional Manager, Region VI

Reply to Attn of: JRA-6

To: William H. Williams Jr., Director
Office of Aviation System Standards

Dr. H. C. McClure, Associate Administrator
Mike Monroney Aeronautical Center

This is our report on the audit of pricing of aircraft parts for Federal Aviation Administration (FAA) aircraft. The audit objectives were to determine whether (i) FAA was paying reasonable prices for aircraft parts, (ii) the Administrator's hotline was effective for resolving pricing complaints, and (iii) only valid and properly-certified parts were purchased. FAA's inventory of aircraft parts was valued at $60 million as of December 31, 1991, with $32 million stocked at the FAA Logistics Center.

A limited survey disclosed prices paid for aircraft parts were consistent with prices paid by other aircraft owners, and only one pricing complaint was made on the Administrator's hotline. Concerning certified parts, we concluded improvements were needed in FAA procedures and controls for (i) inspecting and accepting aircraft parts and (ii) reporting suspected unapproved parts for investigation. We reported 40 suspected unapproved parts in accordance with FAA Advisory Circular 21-29 and also referred these parts to our Office of Investigations. Each finding is summarized in the next two paragraphs.

About 39 percent of line items in the Logistics Center aircraft parts inventory contained parts not manufactured by or traceable to FAA-approved manufacturers. Consequently, parts not conforming to current aircraft certification requirements were installed on FAA aircraft and FAA paid for aircraft parts it cannot now use (see page 3).

Quality Control Inspectors did not report suspected unapproved parts for investigation as requested by FAA Advisory Circular 21-29. As a result, suspected unapproved parts were not investigated (see page 10).

In the January 29, 1993 response to the November 24, 1992 draft report, AVN and Aeronautical Center management concurred with all recommendations. Actions taken or planned are reasonable and the recommendations are considered resolved. However, in accordance with Department of Transportation (DOT) Order 8000.1C, we ask that management provide, within 60 days, an estimated completion date for Recommendation A6.

We concluded the weaknesses in AVN procedures for accepting and using aircraft parts met DOT criteria of materiality. The AVN Director questioned the validity of the $3.5 million estimate, did not agree with criteria used by the Office of Inspector General (OIG) in determining what constitutes an unapproved part, and nonconcurred with reporting a material weakness in the next annual report to the Secretary. We continue to believe a material weakness existed for reasons cited in finding A and Section III of this report. However, we will not pursue this matter as part of this report, but it will be included and addressed in a summary report on aircraft replacement parts. A draft of that report will be issued in March 1993. This report was sent to the Office of Management and Budget Circular A-123 Coordinators within FAA and DOT.

We commend AVN and Aeronautical Center officials on their aggressive efforts to correct problems identified in this report. As problems surfaced during the audit, management took immediate corrective action. I sincerely appreciate the courtesies, assistance, and excellent cooperation extended by AVN and Aeronautical Center officials during the audit. Please call James Kram or me at (817) 334-3545 if you have any questions or require additional information.

cc:

OST (M-20)
OST (M-80)
FAA (AVS-1)
FAA (AVR-1)
FAA (AAA-60)
FAA (APO-3)
GAO-2

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I. INTRODUCTION

Background

The Office of Aviation System Standards (AVN), a national office located at the Mike Monroney Aeronautical Center, Oklahoma City, Oklahoma, is responsible for the worldwide operation and maintenance of FAA aircraft. The AVN Aircraft Maintenance and Engineering Division is responsible for maintaining FAA aircraft in an airworthy condition. Airworthiness requirements are contained in Title 14, Code of Federal Regulations, Subchapter C, Aircraft. Part 21 prescribes certification procedures for aircraft parts.

The Administrator directed that FAA aircraft will be certified, operated, and maintained in accordance with Federal Aviation Regulations for civil aircraft. This directive, incorporated in FAA Order 4040.9D, authorized the AVN Director to establish detailed standards and procedures for managing, operating, and maintaining FAA aircraft. The AVN Director published a General Maintenance Manual on September 5, 1991, establishing a framework for complying with Federal Aviation Regulations. The Director established a 1-year transition period for full implementation of the manual.

Procurement and logistics support are provided by the Office of Acquisition and the FAA Logistics Center, respectively, located at the Mike Monroney Aeronautical Center. During Fiscal Year (FY) 1991 and first quarter of FY 1992, FAA purchased about $12 million of aircraft parts to maintain 62 aircraft. As of December 31, 1991, $32 million of aircraft parts was stocked by the FAA Logistics Center. Another $28 million of aircraft parts was stored at various FAA facilities. Parts in inventory were purchased over many years, and until recently, there was no unanimity within AVN and the Logistics Center as to what constituted adequate proof an aircraft part met FAA-approved standards.

Scope

The audit objectives were to determine whether (i) FAA was paying reasonable prices for aircraft parts, (ii) the Administrator's hotline was effective for resolving pricing complaints, and (iii) only valid and properly-certified parts were purchased. Based on a limited survey, we concluded only the last objective warranted verification work. Concerning the first objective, we found FAA was not paying more for aircraft parts than other aircraft owners. We did not review manufacturers' costs to determine price reasonableness because FAA had limited legal means for controlling prices. Most FAA purchases involved small volume buys for older aircraft. Regarding the second objective, FAA employees filed only one pricing complaint using the Administrator's hotline during the 20 months ended April 1992. The complaint was properly investigated.

The audit was made at the Office of Aviation System Standards and the Logistics Center. We reviewed a random sample of 71 aircraft line items (national stock number or part number) from a universe of 4,963 aircraft items in stock at the Logistics Center. We reviewed all 1,331 parts in stock for the 71 sample items to determine whether (i) new parts had traceability documentation to FAA-approved manufacturers and were marked as required by Title 14, Code of Federal Regulations, and (ii) overhauled parts had traceability documents (maintenance release statements and work orders) from FAA licensed repair stations and part numbers were listed in the aircraft manufacturers' Illustrated Parts Catalogs. We did not verify whether repair stations used approved parts in overhauls or overhauled parts were initially manufactured by companies with FAA production approval. We also reviewed a judgmental sample of 30 aircraft parts installed on three FAA aircraft between March 1990 and August 1992.

The audit was made between March and September 1992 in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States. The audit included an evaluation of internal controls over purchasing, inspecting, approving, and using aircraft parts to ensure they were produced by and fully traceable to FAA-approved manufacturers.

Prior Audit Coverage

In the last 5 years, OIG issued three audit reports and FAA made a survey which contained findings and recommendations concerning certification of aircraft parts (see exhibit A). Although many improvements were made, FAA continued to accept and use aircraft parts not manufactured by or traceable to FAA-approved manufacturers.

II. FINDINGS AND RECOMMENDATIONS

Finding A. Acquiring And Using Aircraft Parts

About 39 percent of line items in the Logistics Center aircraft parts inventory contained parts not manufactured by or traceable to FAA-approved manufacturers. This condition occurred because of (i) ineffective inspections of incoming parts, (ii) inadequate contract requirements, (iii) unreliable vendor sources, and (iv) incomplete quality control inspections. Consequently, parts not conforming to current aircraft certification requirements were installed on FAA aircraft and FAA paid for aircraft parts it cannot now use.

Discussion

Regulations governing the manufacture and use of aircraft parts are in Title 14, Code of Federal Regulations. Part 91.203 of Title 14 provides no person may operate a civil aircraft unless it has an appropriate and current airworthiness certificate. To maintain an airworthiness certificate, Part 43.13 of the regulations prescribes that persons maintaining or altering aircraft must use materiels of such quality that the aircraft condition will be at least equal to its original or properly-altered condition. Parts manufactured for civil aircraft must be approved under an FAA-issued Parts Manufacturer Approval, Technical Standards Order, Type Certificate, or other manner approved by the Administrator (Part 21.305 of Title 14).

AVN issued guidelines for purchasing and inspecting replacement parts for FAA aircraft. Section 14-7 of FAA Order 4100.24 issued November 30, 1988, prescribes:

> All parts and materials used on FAA aircraft must be procured from reliable sources and have proper documentation of their source of origin (manufacture/overhaul). Federal Aviation Regulation 145.45 requires an incoming inspection of all parts and materials prior to installation on an aircraft.

Aircraft Parts In Logistics Center Warehouse

About 39 percent (see exhibit B) of aircraft line items at the Logistics Center contained parts that were not traceable to an FAA-approved manufacturer. The estimated cost of suspected unapproved parts in stock at the Logistics Center exceeded $3.5

million based on extending the cost of suspected unapproved parts identified in the sample to the universe value ($53,075/$483,537 X $32 million).

We reviewed a random sample of 71 aircraft line items containing 1,331 parts from a universe of 4,963 line items at the Logistics Center. All 1,331 parts were reviewed. We found 28 line items, consisting of 518 parts costing $53,075, were produced by manufacturers lacking FAA production authority or by unidentifiable manufacturers. A listing of the 518 parts was provided to AVN and Logistics Center officials during the audit. AVN Quality Control Inspectors assisted us in reviewing parts and searching records in an attempt to demonstrate the suspected parts were "approved." We identified two categories of suspected unapproved parts:

Unapproved Manufacturers - Six line items contained 83 units which were manufactured by companies not having FAA approval to produce replacement aircraft parts. Parts in stock for five of six line items were received after April 1989, when AVN Quality Control Inspectors were assigned to the Logistics Center. All parts were new except for one overhauled part. The overhauled part was not listed in the aircraft manufacturers' Illustrated Parts Catalog. We and FAA officials could not locate any authorized use for this part on aircraft.

We reviewed FAA records showing production approvals and called manufacturers of new parts. During our audit, it became apparent all manufacturers did not have FAA production authority as required by Title 14, Code of Federal Regulations, Part 21.305. For example:

> FAA issued purchase order 92P09180 to a vendor for 50 electrical brushes. The vendor sent the brushes with a shipping document from the company which supposedly manufactured them. The Quality Control Inspector accepted the brushes.
>
> At our request, a Quality Control Inspector called the company believed to be the manufacturer. The company was a broker, not the manufacturer. Company officials stated these brushes were not made by an FAA-approved manufacturer, the brushes were obsolete and were intended for use in test cells, not aircraft.

Four pressure switches for an aircraft hydraulics system had the manufacturer's name ground off and an FAA Parts Manufacturer Approval (PMA) company's part number etched on. To resolve the marking problem, we visited the PMA company and manufacturer's facilities. The parts did not meet requirements set forth in the November 13, 1987 FAA letter granting the company PMA authority.

> FAA has determined that . . . has established the fabrication inspection system required by FAR 21.303(h). . . . Accordingly, Parts Manufacturer Approval (PMA) is hereby granted . . . to produce the replacement parts. . . .

The PMA company neither manufactured nor inspected the pressure switches to ensure conformance with approved design as required by Federal Aviation Regulations, Part 21.303(h). Parts went through two brokers before the PMA company sold them to FAA. The PMA company president said his company's inspection of the parts consisted primarily at looking for shipping damage. The PMA company had no equipment for testing the switches. We also visited the manufacturer. A review of the manufacturer's records and discussion with company official disclosed that, while the manufacturer had PMA authority for other aircraft parts, it did not have FAA production authority for these four parts.

Inadequate Documentation - Twenty-two line items containing 435 parts lacked adequate documentation traceable to the manufacturer. All 435 parts were new, and 6 of 22 line items were acquired after April 1989, when AVN acceptance reviews commenced. When we discovered a part without proper documentation, we searched for documents in records maintained by Quality Control, Logistics Inventory System, and Acquisition System. We classified parts as suspected unapproved parts when we could not trace them to manufacturers. For example:

> Sixteen brake seals in stock had inadequate documentation. The seals had a receiving tag showing a 1989 receipt date. No other documents were attached and the parts were not marked to identify the part number or manufacturer. Our record search in the Office of Acquisition showed FAA purchased 50 brake seals from a distributor in 1989. A further search in the Quality Assurance Branch disclosed the distributor did not provide documents indicating where the parts were manufactured.

Aircraft Parts Installed On FAA Aircraft

Suspected unapproved parts accepted into the Logistics Center were also installed on FAA aircraft. We reviewed a judgmental sample of 30 aircraft parts installed on three FAA aircraft between March 1990 and August 1992. The sample was selected from parts provided by suppliers other than aircraft manufacturers or FAA-operated repair stations.

Our review showed 8 of 30 sample parts installed were suspected unapproved parts. The 27 percent (8 of 30) is not representative of the rate suspected unapproved parts were installed on FAA aircraft because FAA purchased many parts directly from aircraft manufacturers, which we excluded from our sample. The airworthiness of these aircraft may have been compromised because the quality of suspected unapproved parts was not known. We provided a listing of these parts to AVN officials. The AVN Director ordered these parts removed from FAA aircraft. The suspected unapproved parts are in the same two categories previously discussed. Three parts were manufactured by companies not having FAA approval and five parts lacked proper documentation of repair work or traceability to approved manufacturers.

Screening Process

Four factors contributed to breakdowns in the FAA process for screening aircraft parts.

Inspection Process - The AVN quality control inspection process did not verify parts were produced by FAA-approved manufacturers. The process, which AVN commenced in January 1989 at its maintenance hangar and April 1989 at the Logistics Center, primarily consisted of ensuring (i) the manufacturer's name and part number on the part matched the name and part number on the purchase order, (ii) that new parts had an invoice or shipping document attached showing the manufacturer's name and part number, and (iii) overhauled parts had properly completed maintenance release statements and work orders attached.

FAA Technical Instruction 4100.24 was unclear regarding proof needed to support manufacturers were authorized to make aircraft parts or assemblies. Of the 71 sample items reviewed, FAA did not request documentation of the manufacturers' FAA-production approval.

Although not stated in Technical Instructions, Quality Control Inspectors believed and advised us that manufacturers listed in the aircraft manufacturers' Illustrated Parts Catalogs had FAA production approval. During our review, we demonstrated that not all manufacturers listed in the catalogs had production approval.

The Logistics Center audit sample included four manufacturers that were listed by name in the aircraft manufacturers' Illustrated Parts Catalogs. We reviewed FAA records showing production approvals and contacted the four manufacturers. Three manufacturers did not have FAA parts manufacturer approval or authorization from the aircraft manufacturers to sell these parts.

Purchase Order Requirements - FAA purchase orders did not specify what vendors must provide as proof of FAA production authority. Left to interpretation, acceptable proof became an invoice or shipping document without regard for whether the part was produced by an FAA-approved manufacturing system. Consequently, as shown below, FAA accepted parts without adequate proof of production quality.

> FAA purchased a ballast lamp, part number PW-28D-13FL-2. Quality Control accepted the part based on the manufacturer's packing list. However, the packing list did not show whether the manufacturer had FAA production approval. We reviewed FAA records showing production approvals and called the manufacturer who confirmed the part was not produced under an FAA-approved system.

In addition to developing more specific deliverable requirements, there was also a need to familiarize contracting officers and inventory managers with FAA production requirements for aircraft parts. Both disciplines play a major role in purchasing and accepting aircraft parts.

Vendor Sources - The Logistics Information System contains known sources for aircraft parts without regard to whether vendors can provide approved aircraft parts. The Aircraft Maintenance and Engineering Division also had not established procedures for compiling a list of qualified suppliers and auditing the suppliers as recommended in an FAA 1989 System Safety Survey report.

Quality Control Inspections - Incoming parts were not always reviewed by Quality Control Inspectors. Inspectors did not inspect a signal silencer when received or installed on aircraft N-13. The part was shown as a "ground" item in the Logistics Inventory System and, therefore, not routed for inspection. Survey tests also showed 48 of 68 aircraft parts purchased with a credit card were provided to mechanics without being routed through Quality Control. We did not review the 48 parts because they were not part of our sample.

Disposal Of Unapproved Parts

FAA needs to identify and dispose of unapproved parts in inventory at the Logistics Center and other inventory locations. To accomplish this, AVN should develop guidelines for inspectors to follow in determining which parts, if any, can be tested and certified for use on agency aircraft. Parts which cannot be certified should, in our opinion, be destroyed to prevent their reentry into the aircraft parts supply system.

Recommendations

We recommend the Director, Office of Aviation System Standards, in coordination where applicable with the Associate Administrator, Mike Monroney Aeronautical Center:

1. Clarify FAA Technical Instruction 4100.24 to require inspectors to (i) verify that suppliers and manufacturers furnish proof of FAA production authorization for each aircraft part or assembly, (ii) physically inspect parts to ensure they have prescribed markings including PMA designations, and (iii) stop relying on Illustrated Parts Catalogs for identifying approved manufacturers of aircraft parts.

2. Require on purchase orders statements that suppliers and manufacturers must furnish proof of FAA production authorization for each aircraft part or assembly.

3. Establish procedures for (i) identifying approved manufacturers and reliable vendors for aircraft parts, and (ii) auditing suppliers. Suppliers who cannot provide the required documentation should be removed from the reliable vendor list.

4. Provide a joint workshop for contracting officers, inventory managers, and inspectors to (i) thoroughly familiarize them with requirements for purchasing and accepting approved aircraft parts, and (ii) discuss changes needed by each group to improve the process of identifying valid sources and ensuring only approved parts are received.

5. Establish procedures for ensuring that all parts installed on aircraft are first approved by Quality Control.

6. Dispose of unapproved parts.

Management Response

Management concurred with the finding. Actions taken or planned included: (i) AVN revised FAA Technical Instruction 4100.24A to require all incoming parts be ordered only through approved sources, accompanied by proper documentation, and marked appropriately; (ii) AVN, the Office of Acquisition, and the Logistics Center are currently updating Clause 52 which will require proof of FAA production authorization and this clause will be included on all purchase order statements for aircraft parts; (iii) procedures are currently being established for identifying approved aircraft parts manufacturers and vendors; those vendors who cannot provide documentation are being removed; (iv) workshops for contracting officers, inventory managers, and inspectors were conducted in September, October, and November 1992; (v) procedures were incorporated into General Maintenance Manual 4100.24 requiring a Quality Control Inspector or designee to perform an inspection of all incoming parts and the FAA Academy will be conducting 12 classes on these procedures during FY 1993; and (vi) procedures are in the process of being developed for the disposal of unapproved parts. The complete text of management comments is the appendix to this report.

Auditor Comments

Actions taken or planned are reasonable. In accordance with DOT Order 8000.1C, please provide an estimated completion date for Recommendation A6.

Finding B. Reporting Suspected Unapproved Parts

Inspectors did not report suspected unapproved parts for investigation as requested by FAA Advisory Circular 21-29. This occurred because the Aircraft Maintenance and Engineering Division had not established procedures for implementing the Circular. As a result, suspected unapproved parts were not investigated.

Discussion

The Director of Aircraft Certification Service issued Advisory Circular 21-29 on August 6, 1991. The Circular provided guidance for reporting suspected unapproved aircraft parts to the FAA System Surveillance and Analysis Division. AVN had not implemented the Circular reporting provisions. Before the audit, suspected unapproved parts rejected by inspectors were returned to vendors without an investigation or determination of actions which should be taken to prevent distribution of unapproved aircraft parts. We found FAA continued to buy questionable quality parts from the same vendors.

During the audit, inspectors reported three occurrences of suspected unapproved parts to OIG. We referred these 3 parts and 40 additional suspected unapproved parts that we identified to OIG Investigations. We also reported the 40 parts in accordance with Advisory Circular 21-29.

Recommendation

We recommend the Director, Office of Aviation System Standards, establish procedures for reporting suspected unapproved parts in accordance with Advisory Circular 21-29 and retaining those parts until they are inspected and cleared for disposition by the Systems Surveillance and Analysis Division.

Management Response

AVN concurred with the finding and established procedures for identifying and reporting suspected unapproved parts in accordance with Advisory Circular 21-29A. These procedures will be incorporated into the General Maintenance Manual by May 1993. The complete text of management comments is the appendix to this report.

Auditor Comments

Actions taken or planned are reasonable and no further response is required under DOT Order 8000.1C.

III. INTERNAL CONTROL WEAKNESSES

AVN previously rated aircraft maintenance as having medium risks in response to the Federal Managers' Financial Integrity Act of 1982. In our opinion, the internal control weaknesses identified during the audit met the Department's criteria of being material because the weaknesses (i) prevented or are likely to prevent substantial achievement of an assessable unit's program objectives, (ii) resulted in waste of resources amounting to more than $500,000, and (iii) could result in adverse publicity or embarrassment to the Department which diminishes its credibility or reputation.

Management Response

AVN questions the validity of the $3.5 million estimate and is not in agreement with the criteria used by OIG in determining what constitutes an unapproved part. It should be noted that the 28 line items referred to in the OIG draft report were placed in the Logistics Center stock prior to January 1989, the date when AVN assigned a Quality Control Inspector to inspect all aircraft parts received. Prior to the System Safety Survey, FAA aircraft were operated and maintained under less formal guidelines. As a result of the System Safety Survey, the Administrator determined that agency aircraft would operate under Federal Aviation Regulations pertaining to civil aircraft. Thus, agency aircraft were operated and maintained under different criteria than they are today. Therefore, we nonconcur that aircraft maintenance be identified as a material weakness in the next annual report to the Secretary. The complete text of management comments is the appendix to this report.

Auditor Comments

AVN questioning of the $3.5 million estimate does not alter DOT reporting criteria. AVN provided no documentation showing the $500,000 threshold will not be met. The criteria used by OIG was FAA policy and, during the audit, AVN officials reviewed each of the 28 items and agreed they could not be considered approved parts based on FAA criteria.

The draft report very clearly stated that, of the 28 line items containing suspected unapproved parts, stock for 11 line items was received after AVN placed Quality Control Inspectors in the Logistics Center. More significantly, of the 30 sample parts installed on FAA aircraft that we reviewed, 8 were suspected unapproved parts and all were installed on FAA aircraft after AVN began its screening process at its maintenance hanger. Thus, the internal control procedures were not effective. In our opinion, the continued purchase, acceptance, and use of suspected unapproved parts represent a material internal control weakness which should be reported to the Secretary. However, we will not pursue this matter as part of this report, but it will be included and addressed in a summary report on aircraft replacement parts. A draft of that report will be issued in March 1993.

EXHIBIT A
(2 pages)

PRIOR REPORTS ON AIRCRAFT PARTS

In the last 5 years, OIG issued three audit reports and FAA issued a survey report which contained findings and recommendations concerning certification of aircraft parts.

- OIG Report R6-FA-7-134, Serviceability of Aircraft Parts, May 22, 1987, reported AVN and the Logistics Center did not make adequate inspections of aircraft parts, and did not maintain adequate records to support aircraft serviceability requirements. The report recommended orders and operating directives be revised to (i) require proof of purchase from approved manufacturers for new aircraft parts, (ii) clarify the requirements for work orders, (iii) provide for adequate supervisory oversight, (iv) provide for a more structured and complete review of the flow of certified data, and (v) provide for developing and maintaining a complete listing of aircraft parts requiring a serviceability determination.

- OIG Report R6-FA-0-010, Receipt and Inspection of Depot Materiel, October 30, 1989, disclosed aircraft parts were accepted into stock without required certification documents. Recommendations included (i) obtaining Headquarters approval not to purchase undocumented aircraft parts from General Services Administration (GSA) or Department of Defense (DOD), and (ii) taking action to ensure undocumented aircraft parts purchased from GSA and DOD met required safety standards.

- FAA's April 1989 report, System Safety Survey, identified internal control weaknesses in maintaining and operating FAA aircraft. The report concluded:

  > The procurement of aircraft parts needs to be revamped. The current system has no internal control. Some parts are procured and placed on aircraft without traceability to an FAA certified repair station or to an approved government source. This is a serious problem in that the airworthiness of these parts cannot be determined.

  The report made several recommendations, including revising the system used in procuring aircraft parts.

- OIG Report R6-FA-1-102, Survey Report on Audit of Aircraft Maintenance, March 5, 1991, showed FAA did not implement recommendations contained in the System Safety Survey report. Our report concluded that until recommended actions were completed, FAA lacked assurance agency aircraft were maintained in accordance with Federal Aviation Regulations. Our report made five recommendations related to implementing improvements suggested in the System Safety Survey report.

Actions Taken: We found improvements were made to include:

- With assistance from the Logistics Center, AVN reviewed and purged aircraft parts lacking proper documentation from the warehouse during October 1987 to February 1988 (only parts coded "z" or about one-half of aircraft parts in stock).

- With assistance from the Logistics Center, AVN assigned a quality control inspector in January 1989 to inspect aircraft parts before issuance to mechanics for installation on aircraft.

- AVN assigned quality control inspectors to the Logistics Center in April 1989 to inspect incoming aircraft parts.

- AVN directed inspectors to require work orders be provided on all overhauled parts effective December 1989.

- AVN developed a maintenance manual to include procedures for ensuring approved aircraft parts were purchased.

Notwithstanding these improvements, our current audit showed FAA continued to accept and use suspected unapproved aircraft parts.

EXHIBIT B
(1 page)

STATISTICAL SAMPLE EVALUATION

POPULATION = 4,963

SAMPLE SIZE = 71

NUMBER OF ERRORS IN SAMPLE = 28

ERROR RATE = 39.4 percent

PRECISION = PLUS OR MINUS 11.2 percent

PROJECTED ERRORS IN POPULATION = 1,955

Based on our sample of 71 from the total population of 4,963 (line items of aircraft parts minus line items without stock and line items containing standard hardware). We are 95 percent confident that 1,955 line items or 39.4 percent of the population contain the attribute tested. The sampling error is plus or minus 11.2 percent. In other words, we are 95 percent confident that the frequency of occurrence of the attribute tested lies between 28.2 percent and 50.6 percent of the population. This equates to an occurrence of between 1,400 and 2,511 units of the total 4,963 units.

EXHIBIT C
(1 page)

AUDIT TEAM MEMBERS

The following is a list of team members who participated in the Audit of Pricing of Aircraft Parts.

John L. Meche	Regional Manager, Region VI
James J. Kram	Project Manager
David A. Daffron	Auditor-In-Charge
Kerry R. Barras	Auditor
Leroy C. Hill	Auditor
Alford R. Keener, Jr.	Auditor
Petra Roden	Statistician

APPENDIX
(5 pages)

US Department
of Transportation

**Federal Aviation
Administration**

Memorandum

FEB 02 19

Subject: INFORMATION: Draft Report on Audit of Pricing of Aircraft Parts, Federal Aviation Administration Project Number 264-004-6000

Date: JAN 29 1993

From: Director of Aviation System Standards, AVN-1

Reply to Attn of:

To: John L. Meche
Regional Manager, Region VI
Office of Inspector General

The Office of Aviation System Standards (AVN) and the Associate Administrator for the Aeronautical Center have reviewed the findings presented in the Office of Inspector General's (OIG's) draft report on audit of pricing of aircraft parts, and we provide the following coordinated comments. Our reply includes statements of concurrence or nonconcurrence with the findings and a response to each recommendation. Finding B and the recommendation concerning the internal control weaknesses are directed to AVN only, and our response reflects AVN's position on these two issues.

Finding A. Acquiring and Using Aircraft Parts

About 39 percent of line items in the Logistics Center aircraft parts inventory contained parts not manufactured by or traceable to FAA-approved manufacturers. This condition occurred because of (i) ineffective inspection of incoming parts, (ii) inadequate contract requirements, (iii) unreliable vendor sources, and (iv) incomplete quality control inspections. Consequently, parts not conforming to current aircraft certification requirements were installed on FAA aircraft and FAA paid for aircraft parts it cannot now use.

Response: AVN concurs with Finding A, with comment.

Recommendations

We recommend the Director of AVN, in coordination where applicable with the Associate Administrator, Mike Monroney Aeronautical Center:

1. Clarify FAA Technical Instruction 4100.24 to require inspectors to (i) verify that suppliers and manufacturers furnish proof of FAA production

authorization for each aircraft part or assembly, (ii) physically inspect parts to ensure they have prescribed markings including PMA designations, and (iii) stop relying on Illustrated Parts Catalogs for identifying approved manufacturers of aircraft parts.

Response: AVN revised FAA Technical Instruction 4100.24A into General Maintenance Manual 4100.24. The General Maintenance Manual was fully implemented on October 30, 1992. Procedures contained in Chapter III, Section 41, require all incoming parts be ordered only through approved sources, accompanied by proper documentation, and marked appropriately.

2. Require on purchase orders statements that suppliers and manufacturers must furnish proof of FAA production authorization for each aircraft part or assembly.

Response: AVN, the Office of Acquisition, and the Logistics Center are currently coordinating an update to Acquisition of Aircraft Appliances and Components (Clause 52) which will require proof of FAA production authorization. This clause will be included on all purchase order statements for aircraft parts. Implementation of this clause is expected to begin in the second quarter 1993.

3. Establish procedures for (i) identifying approved manufacturers and reliable vendors for aircraft parts, and (ii) auditing suppliers. Suppliers who cannot provide the required documentation should be removed from the reliable vendor list.

Response: AVN, the Office of Acquisition, and the FAA Logistics Center are currently establishing procedures for identifying approved aircraft parts manufacturers and vendors. We are also working together to refine the current source of vendors and suppliers. Those vendors who cannot provide documentation are being removed from the reliable vendors list. This will be an ongoing process as new vendors and suppliers enter and leave the market.

4. Provide a joint workshop for contracting officers, inventory managers, and inspectors to (i) thoroughly familiarize them with requirements for purchasing and accepting approved aircraft parts, and (ii) discuss changes needed by each group to improve the process of identifying valid sources and ensuring only approved parts are received.

   Response: In September, October, and November 1992, workshops for these personnel were conducted through the combined efforts of AVN, Aircraft Certification Service's System Surveillance & Analysis Division, Flight Standards Service's Regulatory Support Division, and the Logistics Center. The workshops' subject matter included material applicable to parts certification and acceptance for personnel involved in ordering, accepting, and inspecting aircraft parts; training for inventory managers and contracting officers; and an approved parts' seminar attended by quality control inspectors, inventory managers, and contracting officers.

5. Establish procedures for ensuring that all parts installed on aircraft are first approved by Quality Control.

   Response: Procedures were incorporated in General Maintenance Manual 4100.24, Chapter III, Section 41 (Change 3 dated August 1992) requiring a quality control inspector or designee to perform an inspection of all incoming parts. To ensure that all employees are aware of the procedures, the FAA Academy will be conducting 12 classes, Course 21414, General Maintenance Manual, during FY-93. AVN personnel are scheduled to attend these classes.

6. Dispose of unapproved parts.

   Response: AVN, the Logistics Center, and the Office of Acquisition are in the process of developing procedures for the disposal of unapproved parts. A completion date cannot be projected at this time. We anticipate that a substantial portion of the suspected unapproved parts may be determined usable based upon criteria contained in proposed Advisory Circular 20-62D.

Finding B. Reporting Suspected Unapproved Parts

Inspectors did not report suspected unapproved parts for investigation as requested by FAA Advisory Circular 21-29.

This occurred because the Aircraft Maintenance and Engineering Division had not established procedures for implementing the Circular. As a result, suspected unapproved parts were not investigated.

Response: AVN concurs with Finding B, with comment.

Recommendation

We recommend the Director of AVN establish procedures for reporting suspected unapproved parts in accordance with Advisory Circular 21-29 and retaining those parts until they are inspected and cleared for disposition by the Systems Surveillance and Analysis Division.

Response: AVN has established procedures for identifying and reporting suspected unapproved parts in accordance with Advisory Circular 21-29A, dated July 14, 1992. We are currently utilizing these procedures and will incorporate them into the General Maintenance Manual, Change 4, scheduled for publication May 1993.

Internal Control Weaknesses

AVN questions the validity of the $3.5 million estimate identified in Finding A. We are not in agreement with the criteria used by OIG in determining what constitutes an unapproved part. It should be noted that the 28 line items referred to in the OIG draft report were placed into Logistics Center stock prior to January 1989, the date when AVN assigned a quality control inspector to inspect all aircraft parts received into the Logistics Center.

As stated in our response to Finding B, we anticipate that a substantial portion of the suspected unapproved parts may be determined usable based on criteria contained in proposed Advisory Circular 20-62D. If the parts are determined usable, the $3.5 million estimate would be greatly reduced. Therefore, due to the reasons given above, AVN nonconcurs with the $3.5 million estimated cost of unapproved parts in the Logistics Center stock.

Prior to the System Safety Survey, FAA aircraft were operated and maintained under less formal guidelines. As a result of the System Safety Survey, the Administrator determined that agency aircraft would operate under Federal Aviation Regulations pertaining to civil aircraft. Thus, agency aircraft were operated and maintained under different criteria than they are today. Therefore, we nonconcur that aircraft maintenance be identified as a material weakness in the next annual report to the Secretary.

If additional information is needed, please contact LaVaughn Emory at 405-954-3736.

William H. Williams, Jr.

AUDIT OF AVIATION INSPECTION PROGRAM

FEDERAL AVIATION ADMINISTRATION

REPORT NUMBER: R6-FA-2-064
DATE ISSUED: MAY 29, 1992

U.S. Department of Transportation
Office of Inspector General

Audit of Aviation Inspection Program

Federal Aviation Administration

Report No. R6-FA-2-084 *May 29, 1992*

SYNOPSIS

Objectives

The objective of the audit was to determine whether inspections were planned and accomplished in accordance with National Program Guidelines.

Conclusions

We identified five areas where management initiatives were necessary to achieve program objectives and enhance efficiency: (i) inspections by FAA pilots did not conform with standards applied to the aviation industry (about 52 percent of inspections made by FAA pilots were done by pilots who did not have the credentials to fly the specific aircraft on which they were making the inspection or who were not current on necessary training for that specific aircraft); (ii) about 23,000 "required" inspections, representing minimum and mandatory coverage, were not accomplished during FY 1989 while about 225,000 discretionary inspections were completed; (iii) inspectors did not complete all tasks on job aids when making inspections, describe limitations of their inspections, record actual time spent on inspections, verify recorded work when reviewing airline maintenance records, report deficiencies identified during inspections or followup to ensure timely corrections were made; (iv) inspectors did not report all violations identified during inspections, and (v) FAA did not report instances of fraud identified during inspections to the Office of Inspector General (OIG). Consequently, FAA was not providing the level and quality of surveillance reflected in its reports, violations of FAA-approved procedures were not detected, and identified deficiencies were not always corrected.

Monetary Impact

This report does not include findings or recommendations that have a monetary impact. The recommendations are intended to improve the quality, consistency, thoroughness and effectiveness of the inspection program.

Recommendations

The report includes 14 specific recommendations intended to amplify and clarify FAA policy and procedures, strengthen supervision of inspectors, and ensure development of a system to facilitate followup on deficiencies identified by inspectors.

Management Position

FAA did not provide comments to our draft report. FAA's response to our final report reflected general disagreement to the circumstances, conditions, and effects discussed in our report.

Office of Inspector General Comments

As a result of a series of discussions between the FAA and OIG, facilitated by a departmental resolution official, FAA agreed to take action which, if effectively implemented, could result in significant improvements in FAA's aviation inspection program.

U.S. Department of
Transportation

Office of the Secretary
of Transportation

Office of Inspector General

Memorandum

Subject: ACTION: Report On Audit Of
Aviation Inspection Program
Report Number R6-FA-2-084

Date: May 29, 1992

From: Lawrence H Weintrob
Lawrence H. Weintrob, Deputy Assistant
Inspector General for Auditing

Reply to
Attn of: JA-2

To: Federal Aviation Administrator

This is our report on the audit of Federal Aviation Administration (FAA) Aviation Inspection Program. The audit objective was to determine whether inspections were planned and accomplished in accordance with National Program Guidelines. This report presents our overall assessment of the Aviation Inspection Program and summarizes our audit results at seven regional and district offices. FAA aviation safety inspectors (inspectors) made 312,000 and 271,000 inspections during Fiscal Year (FY) 1989 and FY 1990, respectively.

During the past 3 years, FAA had taken several actions to upgrade the quality of inspections, improve accuracy of inspection plans, and increase the level of inspections and systems evaluations (referred to throughout this report as surveillance). Such actions included updating inspectors' handbooks, issuing job aids, developing the Program Tracking and Reporting Subsystem, and automating the planning of mandatory and minimum number of inspections (referred to throughout this report as "required" inspections). However, FAA lacked reliable information on its inspection program because of computer acquisition and training problems. To the extent data in the system were incorrect or incomplete, FAA's ability to manage its inspection program was compromised.

Our analyses of available data and review of operations found district offices' surveillance did not adequately conform with FAA policy and National Program Guidelines. Although our findings were very significant, what we found should not be taken to imply that flying was unsafe. We identified five major areas, as summarized in separate paragraphs on the next page, where management initiatives were necessary to achieve program objectives and enhance efficiency.

About 52 percent of inspections made by FAA pilots were done by pilots who did not have the credentials ("type ratings") to fly the specific aircraft on which they were making the inspection or they were not current on necessary training for that specific aircraft. Consequently, inspections by FAA pilots did not conform with standards applied to the aviation industry (see page 4).

About 23,000 "required" inspections, representing minimum and mandatory coverage, were not accomplished during FY 1989 while 225,000 discretionary inspections were completed, and inspectors spent significantly less than 35 percent of their time on surveillance activities. As a result, about 1,100 air operators or air agencies received no inspection coverage during FY 1989 while 84 air operators were inspected between 200 and 18,000 times (see page 12).

The quality of inspections was questionable. Inspectors did not (i) complete all tasks on job aids when making inspections or describe limitations, (ii) record actual time spent on inspections, (iii) verify recorded work when reviewing airline maintenance records, (iv) report deficiencies identified during inspections and followup to ensure deficiencies were corrected timely. Consequently, FAA was not providing the level and quality of surveillance reflected in its reports, violations of FAA-approved procedures were not detected, and identified deficiencies were not always corrected (see page 19).

Inspectors did not report all violations identified during inspections. Consequently, safety requirements were not uniformly enforced and FAA's system for tracking violations did not provide an accurate record of aircraft operators' safety status (see page 28).

FAA did not report instances of fraud identified during inspections to OIG. As a result, OIG was preempted from reviewing and investigating fraudulent activities within its statutory responsibility (see page 32).

The draft report, dated February 20, 1992, was discussed with FAA officials who disagreed, in part, with the audit findings and recommendations. A response to the draft report was due on April 21, 1992. On May 1, 1992, FAA asked for more time to provide written comments. We informed FAA officials that the final report would be issued on May 29, 1992. We did not receive written comments, therefore, we considered verbal comments provided by FAA officials and issued the final report. In accordance with Department of Transportation (DOT) Order 8000.1C, please advise us within 60 days of actions taken or planned regarding each audit recommendation.

Department guidelines state internal control weaknesses should be reported to the Secretary when the weakness has or is likely to (i) prevent substantial achievement of an assessable unit's program and administrative objectives, (ii) result in adverse publicity or embarrassment to the Department which diminishes its credibility or reputation, or (iii) have an adverse impact on the public or third parties. In our opinion, the internal control weaknesses identified in findings A, B, C, and D of this report meet these criteria and should be reported to the Secretary for inclusion in the annual report to the President and Congress as required by the Federal Managers' Financial Integrity Act of 1982. The final report will be provided to the Office of Management and Budget Circular A-123 Coordinators within FAA and DOT.

The courtesies, cooperation, and assistance extended by FAA officials during the audit are sincerely appreciated. Please call me at 366-1992 or John Meche and Jim Kram at FTS 817-334-3545 if you have any questions or require additional information concerning this report.

cc:

OST (M-83)
FAA (AMS-500)
FAA (AAA-60)
FAA (ASW-42)
GAO-2

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I. INTRODUCTION

Background

The FAA mission is "service to the nation by providing a safe and efficient aviation system which contributes to national security and the promotion of U. S. aviation." The Federal Aviation Act of 1958, as amended, charges the Secretary of Transportation with regulating air commerce in a way that best promotes its development and safety. Although the Airline Deregulation Act of 1978 removed Government control over domestic airline fares and schedules, FAA retained its responsibility for providing oversight of airline compliance with safety regulations.

FAA Flight Standards Service is responsible for regulating users of the National Airspace System, both in how they operate and the equipment they use. Through its mission to regulate the aviation industry, Flight Standards develops safety standards, oversees industry compliance, and enforces compliance with those standards. FAA Headquarters annually issues National Program Guidelines which establish mandatory and minimum number of "required" inspections to ensure statutory and regulatory requirements are fulfilled. Inspections are made by inspectors who are experienced pilots, mechanics, and avionics technicians.

Flight Standards programs are carried out nationwide by a work force of about 2,600 inspectors. Its functions are managed and executed through the Headquarters, 9 regional, and 90 district offices.

Scope

We made an audit of the FAA Aviation Inspection Program to determine whether inspections were planned and accomplished in accordance with National Program Guidelines. We obtained FAA computer tapes which contained results of inspections planned and accomplished during FY 1989 and FY 1990, and inspections planned for FY 1991. Data tapes were analyzed to determine the percentage of "required" inspections completed and whether time expended on inspections met the FAA goal of devoting 35 percent of inspectors' available time to surveillance. We also selected 144 inspectors and analyzed their inspection efforts for conformance with National Program Guidelines.

We reviewed internal controls for planning and completing inspections at seven regional offices (Central, Eastern, Great Lakes, Northwest Mountain, Southern, Southwest, and Western-Pacific) and seven district offices (Kansas City, New York, Chicago, Seattle, Georgia, Houston, and Los Angeles). Between February and April 1991, we also observed inspectors making inspections of aircraft and maintenance records, and we made additional tests of airline maintenance records to evaluate the adequacy of inspections. Airlines visited for these record checks included Trans World Airlines, Pan American World Airways, Midway Airlines, Alaska Airlines, Atlantic Southeast, Continental Airlines, and MGM Grand Air.

FAA tracked inspection plans and accomplishments in FY 1989 through a computer-based Work Program Management System. This system was replaced in FY 1990 with the Program Tracking And Reporting Subsystem. Prior audit reports disclosed FAA lacked reliable information on its inspection program because of computer acquisition and training problems. We used FAA data in making our analyses because it represented the only information available. We also confirmed our results with managers, supervisors, and inspectors in each region and district office visited. At the Houston district office, we counted and included in our analysis results of inspections not recorded in the FAA tracking system.

We made the audit between February 1990 and September 1991 in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

Prior Audit Coverage

The OIG and the General Accounting Office (GAO) made several audits related to the Aviation Inspection Program. OIG issued seven reports since October 1, 1988 which identified regional noncompliance with National Program Guidelines and FAA policies. GAO reports identified a need for improved guidelines, reporting systems, inspector training, and oversight (see exhibit C).

This audit confirmed deficiencies identified in our seven regional reports also existed on a national level. FAA initiated several actions in response to GAO reports, including updating inspectors' handbooks, issuing job aids, developing the Program Tracking and Reporting Subsystem, and automating the planning of "required" inspections. However, additional FAA action is needed concerning use of handbooks, job aids, and the automated tracking and planning systems.

II. FINDINGS AND RECOMMENDATIONS

Finding A. Inspector Pilot Qualifications

About 52 percent of inspections made by FAA pilots were done by pilots who did not have the credentials ("type ratings") to fly the specific aircraft on which they were making the inspection or they were not current on necessary training for that specific aircraft. This condition occurred because supervisors did not track inspectors' qualifications or enforce qualification requirements, and inspectors and supervisors had varying opinions as to which inspection activities had to be made by pilots current on training. Consequently, FAA inspections did not conform with standards applied to the aviation industry.

Discussion

FAA employed about 1,200 inspectors who were pilots and whose responsibilities included checking commercial pilots' ability to safely operate aircraft. All commercial pilots were required to have their flying skills tested at intervals prescribed in Federal Aviation Regulations. These tests were given by an FAA inspector or an FAA designated check airman (flight examiner). Requirements established for inspectors who make flight checks were contained in FAA Order 8430.6C, Air Carrier Operations Inspector's Handbook, Chapter 6.

> Qualification Required to Perform Checks. ATPC (Airline Transport Pilot Certificate) Checks, additional type rating checks, pilot proficiency checks, flight engineer initial or proficiency checks, and check airman approvals will be conducted by inspectors with an appropriate ATPC/FE (flight engineer) type rating, who have completed either initial or recurrent training within the preceding six months on the aircraft to be used. . . . (Parenthetical phrases added.)
>
> Surveillance and Supervision of Check Airmen. Inspectors are responsible for the surveillance and supervision of check airmen in the type aircraft in which they are type rated and maintain currency.

The Inspector's Handbook did not identify specific work activities for which inspectors must be appropriately "type rated" and trained. In the absence of clear guidance, we asked the manager of the Headquarters Technical Standards Branch to identify the specific work activities for which inspectors must be "type, rated" as pilots and receive recurrent flight training. The manager identified 16 activity codes that would require inspectors to have completed initial or recurrent training within 6 months. These codes were:

Activity Code	Description
1356	Initial Operating Experience
1510	Oral ATP-F/E
1511	Simulator ATP-F/E
1512	Aircraft ATP-F/E
1514	Oral Added Type Rating
1515	Simulator Added Type Rating
1516	Aircraft Added Type Rating
1518	Oral Added Flight Engineer
1519	Simulator Added Flight Engineer
1520	Aircraft Added Flight Engineer
1534	Conduct 609 Reexam
1631	Check Airman
1664	Pilot Examiner-Large/Turbojet
1665	Pilot Examiner-Other
1668	Flight Engineer Examiner
1672	Aircrew Program Designees

We obtained a listing of inspections for the 16 activity codes for FY 1989 and FY 1990. These activities consisted of FAA reviews and flight tests to ensure commercial pilots satisfactorily demonstrated the knowledge and skills to operate aircraft. Activity code 1356 involves FAA monitoring pilots' initial operating experience, the 1500 series relates to FAA certification of commercial pilots to fly designated aircraft, and the 1600 series relate to FAA surveillance of the pilots' continuing proficiency and approval of check airmen.

In total, 7,673 inspections were made by 130 inspectors in the seven district offices visited. We compared recorded inspections to inspectors' credentials and training records to determine if inspectors possessed the "type rating" for the aircraft used in the inspection and received recurrent flight training within the prescribed time.

"Type Ratings"

Seventy-two inspectors made 1,117 inspections (see exhibit A) on aircraft they did not hold the "appropriate ATPC/FE type rating" as required by FAA Order 8430.6C. These inspections represented 15 percent of inspections made by 130 inspectors during FY 1989 and FY 1990, and consisted of the following inspection types:

557	(50 percent)	check airman
406	(36 percent)	initial operating experience
122	(11 percent)	certification
32	(3 percent)	examiners and program designees

The 122 inspections related to certifying new pilots and flight engineers are the most significant. FAA Headquarters officials advised us that certification actions identified in our analyses were done by FAA-approved examiners who were "type rated" and currently trained in the aircraft. FAA officials further stated recorded inspections represented FAA's monitoring of examiners, and it would be wrong for an inspector to sign off on a certificate when the inspector was not "type rated" in the aircraft. FAA's inspection tracking system did not contain information to distinguish if recorded inspections constituted monitoring of examiners or actual testing of new pilots. We, therefore, expanded our review to match the 122 certification actions with airmen applicant testing and certification records maintained at the FAA Airman Registry in Oklahoma City, Oklahoma. This match disclosed three FAA inspectors without appropriate "type ratings" had in fact tested and issued pilot certificates to 13 applicants. One inspector tested and issued B-727 pilot certificates to two airmen on aircraft the inspector was not "type rated" to fly. Another inspector, without appropriate "type ratings" tested and issued two pilot certificates for an L-1011 and B-757 aircraft. Finally, an inspector who was not "type rated" in a JetRanger (BH-206) helicopter conducted oral exams, made flight checks, and signed pilot certificates for nine individuals.

In the areas of inspecting check airmen and initial operating experience of new pilots, following is an example of what our analysis disclosed. An inspector who was "type rated" to operate seven aircraft (ND-262, DHC-7, HS-125, B-757, B-767, A-310, and L-382) made 16 inspections in those aircraft. However, he also made 14 inspections in aircraft for which he was not "type rated" (B-727, B-737, B-747, and A-300). The 14 inspections consisted of 10 check airman inspections and 4 inspections of pilots' initial operating experience. On one check airman inspection the inspector recommended FAA accept an industry check airman who FAA subsequently accepted to conduct line checks and initial operating experience checks on the Airbus A-300, an aircraft for which the inspector was not "type rated." We identified 19 instances where check airman were accepted by FAA based on check rides given in aircraft that inspectors were not "type rated" to fly.

Inspectors without the requisite credentials were allowed to make inspections because supervisors did not monitor qualification requirements. While some offices maintained records of inspectors' qualifications, most records were incomplete. Evidence existed that inspectors and supervisors ignored requirements in order to accomplish assigned inspections. For example, an inspector performed activity codes 1356 and 1631 on a B-727 aircraft, on which he was not "type rated". When we asked why this was done, the inspector said the airline made a last minute change of aircraft type and district office officials told him to accomplish the inspection anyway.

One district office manager responded to our findings in this area as follows:

> Subsequent to our receiving the IG Debrief Memorandum this office consulted available written information and higher headquarters in an effort to establish the existence of firm, fair, consistent, and unambiguous documented guidance concerning currency and qualification requirements with respect to inspector airman certification, surveillance, and approval functions. Our efforts confirmed what we suspected after reviewing the memorandum - we need the above guidance for all operations inspectors and we feel that it should come from the Headquarters level. Their cooperation on this matter would be highly appreciated and should do much to alleviate the type of non standardization and confusion reflected in the debrief memorandum.

As discussed in the next paragraph, FAA authorized regional offices to waive recurrent training requirements under certain circumstances, but there was no provision in Federal Aviation Regulations or FAA policy for waiving qualification requirements.

Recurrent Flight Training

Ninety-six inspectors made 2,358 inspections (see exhibit A) on aircraft for which they had not completed ". . . training within the preceding six months on the aircraft to be used, (12 months for dual qualified inspectors . . .)" or been given approved waivers, as required by FAA Order 8430.6C. This represented 31 percent of inspections made during FY 1989 and FY 1990.

Supervisors and inspectors had varying opinions as to which inspection activities needed inspectors who were current on flight training. For example, some supervisors stated inspections of Initial Operating Experience (activity 1356) and Flight Engineer Examiner (activity 1668) did not require an inspector to be current. Other supervisors identified activities beyond those recognized by FAA Headquarters, such as Check Airman-Pilot (activity 1346), Check Airman-Flight Engineer (activity 1347), and Proficiency/Competency Check (activity 1632) as requiring recurrent training. Therefore, FAA Headquarters should identify in the Inspector's Handbook the specific inspection activities requiring currency training. For inspection activities where district supervisors agreed inspectors should be current, more than 1,800 inspections were made by inspectors who were not current and who were not on approved waivers.

GAO report RCED-89-168, issued in September 1989 in response to a request from the House Subcommittee on Aviation, disclosed 63 percent of inspectors had not received recurrent flight training and FAA often waived the training requirements.

The number of waivers issued in the seven regional offices decreased from 318 in FY 1989 to 234 in FY 1990, representing a 26 percent reduction. However, during the same period, inspections made by inspectors who were not current on training and who were not on waivers increased from 996 to 1,377, a 38 percent increase. Thus, our analyses revealed supervisors were not doing a better job of keeping inspectors current on training, they were simply allowing inspectors to do inspections without requesting waivers.

Use Of Waivers

Twenty-three inspectors made 459 inspections (see exhibit A) while on waivers. This represented six percent of inspections we reviewed. FAA Order 8430.6C provided that regional offices may waive recurrent training requirements, limited to: "(1) cases where recurrent training has been requested but is unavailable, (2) situations where illness prevented attendance, or (3) instances when checks are required on older propeller aircraft of moderate use where the use of examiners, staffing, or other considerations make inspector training unfeasible. . . ." We agree that Item 3 describes a situation where a waiver would be appropriate; however, Items 1 and 2 are for convenience and, in our opinion, not consistent with safety considerations FAA is charged with overseeing and enforcing.

FAA did not grant similar waivers to industry pilots who serve as flight examiners. Industry pilots, whom FAA certify as flight examiners, were not permitted to do flight checks unless they held the "type ratings" and had satisfactorily completed recurrent training. Granting waivers to FAA pilots because requested recurrent training was not available, or an illness prevented attendance, serves to create a different and significantly less stringent standard for FAA than for the aviation industry.

Training Funds

Reduction in training funds affected FAA's ability to provide recurrent training to inspectors. A need to prioritize flight training was reported in a September 1989 GAO report (Report GAO/RCED-89-168). The report noted FAA had been unable to provide training to all inspectors who were pilots and recommended the Secretary of Transportation direct the FAA Administrator to:

> . . . reevaluate the roles and responsibilities of the operations inspectors and identify the number of operations inspectors that are needed to conduct flight checks and provide these inspectors flight training.

FAA did not concur. The DOT response stated:

> . . . all operations inspectors need flight training to maintain operational familiarity with the National Airspace System. The FAA is attempting to accomplish this through careful quota management and administrative oversight.

Our audit disclosed FAA had not achieved its goal of providing recurrent flight training to all operations inspectors. During this audit, FAA issued Bulletin 91-4 to the Inspector's Handbook on June 30, 1991, establishing priorities for recurrent flight training.

The bulletin directed managers to categorize each inspector as to a "line" or "staff" category and to ensure "line" inspectors were given first priority for available training quotas. This action, if properly implemented, will better enable FAA to meet training needs of inspectors assigned to airman certification and surveillance activities. Thus, no recommendation on training is included in this report.

Conclusion

Subsequent to discussions of our audit results with district office managers and supervisors, FAA changed the pilot qualification requirements in Chapter 6 of FAA Order 8430.6C which had been in effect since July 1984. The change, effective June 30, 1991, basically eliminated the requirement for FAA pilots to be "type rated" on the aircraft used during flight checks for all inspections except actual certification (1500 series activity codes). The change established a totally different standard for FAA pilots doing flight checks than for industry pilots doing the same flight checks for FAA. In our view, FAA will lack credibility as an effective regulator with its recently changed policy of requiring the aviation industry to "Do as it says, not as it does."

Recommendations

We recommend the FAA Administrator:

1. Revise the Aviation Safety Inspector's Handbook to:

    a. Identify all activity codes for which operations inspectors must have specific "type ratings" and recurrent training to perform.

    b. Restrict the use of waivers to only those instances where older aircraft in moderate use are involved and where recurrent training is not feasible.

    c. Require district office supervisors to enforce agency policy on inspector qualifications, training, and use of waivers.

2. Develop a system for tracking operations inspectors' qualifications and recurrent training needs.

3. Direct district office managers to stop using inspectors to make inspections on aircraft for which the inspectors are not appropriately "type rated" and current on training.

Management Response

FAA officials did not provide a written response to the draft report. In accordance with DOT Order 8000.1C, FAA officials are to advise us within 60 days of actions taken or planned regarding each audit recommendation.

Finding B. Surveillance Accomplishments

About 23,000 "required" inspections, representing minimum and mandatory coverage, were not accomplished during FY 1989[1] while 225,000 discretionary inspections were completed, and inspectors spent significantly less than 35 percent of their time on surveillance activities. This occurred because (i) inspectors did not comply with National Program Guidelines, (ii) inspectors inappropriately terminated "required" inspections, (iii) surveillance plans were poorly developed, (iv) managers' performance standards did not call for 100 percent accomplishment of "required" inspections, and (v) managers did not adequately review inspection accomplishments. As a result, about 1,100 air operators or air agencies received no inspection coverage during FY 1989 while 84 air operators were inspected between 200 and 18,000 times although no significant violations were being identified.

Discussion

FAA considered surveillance (inspections and system evaluations) to be the most important function done by inspectors to ensure safety and regulatory compliance in the aviation system. FAA Headquarters annually issued National Program Guidelines establishing surveillance requirements. FAA's Program Tracking and Reporting Subsystem Procedures Manual, Chapter 3, provided the following planning instructions to district offices:

> The National Program Guidelines (NPG) establish the minimum inspection requirements. However, additional inspections must be planned to ensure operator compliance and provide sufficient data for future analysis. . . . Offices shall program (forecast) for the surveillance workload a minimum of 35% of the total hours available in each specialty.

The remaining 65 percent of inspectors' time was to be expended on certifications, investigations, and safety promotion activities.

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[1] Our detailed analyses focused on FY 1989 accomplishments because FY 1990 results were not available when we started the audit. We later obtained FY 1990 results which identified the same conditions continued to exist. In FY 1990, 15,537 and 9,422 "required" inspections were not completed or were terminated, respectively.

"Required" Inspections

More than 22 percent of "required" inspections were not accomplished during FY 1989. FAA Headquarters established the "required" Flight Standards Work Program for FY 1989 in Action Notice 1800.6 which prescribed:

> Surveillance is the most important function performed by Flight Standards field office personnel to ensure safety and regulatory compliance in the aviation system. . . . The surveillance required by this paragraph is mandatory and has priority over other work activities. (Emphasis added.)

The National Program Guidelines specified that each FAA region must make designated inspections of each certified operator doing business within the region. We obtained a count of "required" inspections planned but not accomplished for FY 1989. Nationally, 18,750 (18 percent) of the "required" inspections were not done as planned. Deficits by region are shown in exhibit B.

We also found 8,806 "required" inspections were terminated during FY 1989. These inspections were to be terminated only if operators ceased operations or were no longer active within the region.

An analysis of 300 terminated inspections disclosed district offices terminated 152 inspections (50 percent) for which they later recorded inspections of the same operator. For example, one inspector reported 10 "required" inspections were completed, three of which were coded as terminated. This same inspector also made inspections of this airline during the next quarter. Obviously, the airline had not ceased operations which would have justified terminating the "required" inspections. Neither the inspector nor his supervisor could explain why the inspections were terminated. We estimated about 4,400 (50 percent of 8,806) inspections, representing 4 percent of "required" inspections, should not have been terminated.

Although FAA initiated a new automated system for planning "required" inspections during FY 1991, these inspections were not accurately planned. We compared inspections planned for six activity codes[2] to the National Program Guidelines. Six of seven regional and district offices did not accurately plan the inspection effort.

Six offices planned 251 (18 percent) too few and 34 (2 percent) too many inspections. District offices used inaccurate data or made errors in scheduling "required" inspections. Although Headquarters notified each region of a significant shortfall in the Vital Information System which identified operators, aircraft, and airmen operating within each district, all district offices did not update these data before preparing inspection plans. For example, at one district office, the aircraft makes and models were inaccurate for 6 of 26 airlines. One district office also planned 585 too many inspections because it scheduled the same "required" inspections as were scheduled by another district office.

Only the Western-Pacific Region accurately scheduled inspections because it played a direct role in updating the Vital Information System and assigning "required" inspections to district offices. The other regions left it up to district offices without making a comprehensive review of inspection plans and the Vital Information System to ensure data used to generate plans were complete and accurate.

The significant shortfall in planning and accomplishing "required" inspections demonstrated that regional and district managers did not make surveillance their first priority. In a written response to a local audit debrief report, one regional manager responded:

> Our managers know full well that the NPG (National Programs Guidelines) program has first priority, except for other variables, such as accident and enforcement investigations and reports, training, inspectors on TDY, (temporary duty) etc. (Parenthetical phrases added.)

In our view, these comments show surveillance to be no better than fourth priority, which is not consistent with FAA policy.

Specific performance standards and monitoring of inspection results were needed to ensure National Program Guidelines were accomplished. Regional and district managers' performance standards were not consistent with provisions of the National Program Guidelines. Only the regional managers' performance plan contained standards tied to the National Program Guidelines, but these standards only required regional managers to "Meet 80% of published national annual work program requirements . . ." to be fully successful. If "required" inspections were mandatory, performance standards for regional and district managers should include such a performance requirement.

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[2] Activity codes selected include operations, maintenance, avionics ramp inspections (1622, 3627, 5627), operations enroute inspection (1624), and maintenance and avionics spot checks (3628, 5628).

Headquarters, and most regional and district offices, did not adequately review inspection accomplishments for conformance with National Program Guidelines. Of the seven regional offices, only the Southwest Region established a special office to review and monitor district office surveillance efforts. This action was taken in 1989 in response to an OIG report (R6-FA-9-078) which disclosed the region accomplished only 87 percent of its "required" inspections. The Southwest Region significantly increased its accomplishments during FY 1990, completing 94 percent of "required" inspections, with five of nine district offices completing 100 percent.

Surveillance Goal

Inspectors spent significantly less than 35 percent of their available time on surveillance. FAA Headquarters directed district offices to program, in addition to the "required" inspections, ". . . a minimum of 35% of the total hours available in each specialty" to surveillance. Activities selected for inspections were left to the discretion of district managers and inspectors. The National Program Guidelines, however, instructed district office managers and inspectors to ". . . be alert to changes in certificate holder operating characteristics that may affect safety and regulatory compliance."

Although district office officials used standard work rates for planning sufficient inspections to meet the 35 percent goal of inspectors' time on surveillance, FAA did not compute actual accomplishments to ensure the 35 percent goal was met. Therefore, we computed the percentage of actual accomplishments in the same manner that FAA used to plan the 35 percent level of effort. During FY 1989, inspectors recorded 999,147 hours of surveillance which accounted for 28 percent of inspectors' available time. Our analysis of FY 1989 inspections disclosed recorded surveillance time was significantly overstated by as much as 53 percent (see finding C). During FY 1990, 251 more inspectors were hired, yet recorded surveillance hours declined to 928,921 hours, representing 23 percent of inspectors' available time.

District office planning efforts focused mainly on scheduling sufficient inspections to meet the 35 percent requirement. We saw almost no evidence in the planning process that operators and activities were selected for discretionary inspections because of "characteristics that may affect safety and regulatory compliance."

If discretionary inspections were planned based on known or suspected problems, it would be reasonable to assume these inspections would identify a higher rate of safety violations. To the contrary, discretionary inspections resulted in significantly fewer violations of safety regulations when compared to "required" inspection results.

Comparison of FY 1989 Enforcement Actions Identified During Required And Discretionary Inspections

Type of Inspection	Total Inspections Completed	Enforcement Actions Number And Percent
"Required"	87,000	542 (.62)
Discretionary	225,000	756 (.34)

Our analysis of discretionary inspections showed about 40 percent of the inspection effort was directed to only two activities, ramp inspections (visual inspections of aircraft at the gate area) and enroute inspections (observing crew members during flight). We observed that inspectors selected aircraft for review based on availability at the time of inspection, rather than individual operating characteristics. The lack of a systematic approach to making discretionary inspections resulted in some aircraft and airmen being inspected repeatedly, although no problems were identified, while many others were never inspected. To illustrate, during FY 1989, 514 aircraft were inspected more than 25 times (14 aircraft were inspected more than 100 times), and 69 airmen were inspected more than 10 times.

Because minimum "required" inspections were not accomplished, about 1,100 air operators or air agencies received no inspections during FY 1989 while 84 air operators were inspected between 200 and 18,000 times, although no significant violations were being identified. FAA's Work Program Management System showed 1,900 air operators or air agencies received no inspection coverage during FY 1989. Audit field work disclosed about 40 percent of these operators/agencies ceased operations during the year, leaving about 1,100 that were operational for the full year and should have been inspected.

Discretionary inspections were not focused on "characteristics that may affect safety and regulatory compliance" because district offices emphasized meeting the 35 percent requirement rather than directing inspection resources to high risk areas. High risk areas were not readily identifiable at district offices because FAA had not provided the systems and procedures needed to identify potential safety and compliance issues. Although FAA maintained numerous data bases with safety-related information, it did not integrate such data as accidents, incidents, pilot deviation, and inspection results to assess risks and schedule surveillance efforts. Recommendations for developing a risk-assessment system were presented in a November 1991 GAO report (GAO/RCED-92-14) to which FAA responded. Therefore, recommendations for improving the risk-assessment process are not included in this report.

Recommendations

We recommend the FAA Administrator:

1. Establish policy that only regional managers can approve the termination of planned "required" inspections.

2. Include specific standards in regional and district managers' performance standards requiring completion of 100 percent of "required" inspections, or justifying exceptions.

3. Expand National Program Guidelines to identify specific responsibilities and procedures for reviewing, analyzing, and adjusting surveillance plans and accomplishments. These procedures should, at a minimum, provide that:

    a. Headquarters and regional offices review surveillance accomplishments, at least quarterly, to ensure planned inspections are accomplished. The reviews and followup actions should be documented.

b. Regional offices review the Vital Information System and annual inspection plans to ensure "required" inspections are accurately planned and discretionary inspections focus on potential risks and emphasis areas. The reviews and corrective actions should be documented.

Management Response

FAA officials did not provide a written response to the draft report. In accordance with DOT Order 8000.1C, FAA officials are to advise us within 60 days of actions taken or planned regarding each audit recommendation.

Finding C. Quality Of Inspections

The quality of inspections was questionable. Inspectors did not (i) complete all tasks listed on job aids when making inspections or describe limitations, (ii) record actual time spent on inspections, (iii) verify recorded work was done when reviewing airline maintenance records, and (iv) report deficiencies identified during inspections and followup to ensure deficiencies were corrected timely. These conditions occurred because inspectors did not comply with established procedures, supervisors did not monitor inspectors' performance, and additional FAA guidance was needed. Consequently, FAA was not providing the level and quality of surveillance reflected in its reports, violations of FAA-approved procedures were not detected, and identified deficiencies were not always corrected.

Discussion

FAA Order 1800.56, Chapter 3, stated:

> For surveillance requirements to be satisfactorily completed, inspectors must perform all elements of a job task. . . .

Specific job tasks were developed in 1985 in response to an indepth review FAA made of its aviation safety inspection system. This review, entitled Project SAFE (Safety Activity Functional Evaluation), resulted in development of consolidated job data sheets of major tasks done by inspectors. Job task sheets defined precise elements and review requirements of particular inspections to provide standardization for all inspectors to ensure airline safety and compliance. Since 1988, FAA has also issued job aids for many inspection activities that updated and expanded upon guidance provided in the 1985 job task sheets. FAA Order 8400.10 enforced the use of job aids by stating:

> . . . each type of inspection must have individual objectives and be conducted each time in generally the same manner, according to the direction and guidance in this handbook and with appropriate job aids. . . . Inspectors should describe in their reports how the inspection was limited in scope.

Using Job Aids

Inspectors usually did not complete all tasks listed on job aids and did not describe in their reports how inspections were limited in scope. During FY 1989, inspectors made about 82,000 operations and airworthiness ramp inspections, claiming 134,000 hours of surveillance using standard work hours. The standard work hours were developed based on time data for accomplishing all tasks. Ramp inspections allowed inspectors to observe and evaluate operators' aircraft, methods, and procedures immediately before or after a flight.

We observed inspectors making 60 ramp inspections. Only six inspections covered all applicable tasks in the job aid. Although inspectors readily admitted they did not cover all task requirements during the 54 inspections, only two described in inspection reports how the scope of their inspections was limited. Our observations revealed the scope of most inspections was severely limited. For example, for 30 ramp inspections in three district offices, inspectors checked between 8 and 66 percent of applicable items on the job aids, the average being 38 percent. Some important items that inspectors should visually inspect such as landing gears were checked 48 percent of the time, oxygen was checked 43 percent of the time, engines 52 percent of the time, and engine controls 33 percent of the time. It is significant to note that these limited scope inspections were made while we were observing the completeness of the inspectors' review. Although significant numbers of tasks were not done, inspectors were automatically credited with standard work hours of surveillance associated with completion of all tasks in the job aid.

Inspectors did not complete all tasks because FAA Orders were contradictory and inspectors chose to ignore National Program Guidelines requirement that "all elements of a job task" be performed. FAA Orders 8300.10 and 8400.10 (Inspectors' Handbooks) contradicted National Program Guidelines and did not direct inspectors to complete all elements of a job task. Words such as "must" and "should" were used interchangeably although FAA Orders defined the words differently. Because of contradictions in policy, inspectors did not conform to a standard method of review.

Recording Actual Time

We also found recorded surveillance time was significantly overstated for inspectors. We made an analysis of FY 1989 inspections recorded by 144 inspectors. Based on standard work rates and inspections done, we identified inspectors who received credit for more than 8 hours of surveillance during any day. The analysis showed 133 (92 percent) of the 144 inspectors recorded more than 8 hours of surveillance on at least 1 day. The number of days when this occurred during FY 1989 ranged from 1 to 79 days. Inspectors said they could record more than 8 hours of surveillance per day, without overtime, because the standard work rates were excessive and they made multiple inspections simultaneously. Our analysis of the 133 inspectors showed 82 inspectors received credit for accomplishing between 1 and 5 weeks (40 and 204 hours) of surveillance work during 1 day. · Further analyses of 33 inspectors' work showed 15 also recorded non-surveillance work on days they recorded more than 8 hours of surveillance.

Regarding simultaneous inspections, inspectors would take credit for completing a ramp, cockpit en route, cabin en route, and check airman inspection on the same flight. However, FAA's August 1990 National Program Guidelines stated:

> Quality inspections and reporting are emphasized even if it means doing fewer inspections. For example, do not accomplish a spot inspection, cabin inspection and cockpit en route on the same flight. An inspector is to accomplish one of these tasks and use the time to do a thorough job.

Despite this guidance, inspectors stated nothing was wrong with reporting simultaneous inspections. However, they agreed this method of reporting distorted recorded time spent on surveillance. To illustrate, surveillance hours reported by four inspectors interviewed in one district office totaled 4,499 hours. However, inspection time totaled 2,117 hours, 53 percent less than the recorded hours, when inspection time was limited to 8 hours per day.

Accomplishments recorded in FY 1989 were further distorted by district offices entering more than 25,000 inspections twice in the Work Program Management System. Eliminating the duplicates reduced recorded surveillance time from 28 percent of inspectors' time (see finding B) to 26 percent. Duplication occurred because district offices sent copies of their inspection reports to the certificate-holding district offices (offices that issued and held an operator's certificate). Certificate-holding district offices frequently input the same inspection reports into the Work Program Management System. This system deficiency was corrected in FY 1990 with the development of the Program Tracking and Reporting Subsystem.

Use of standard work rates to plan and report the level of effort on surveillance was misleading and the quality of inspections was questionable when only a few items were checked instead of a full and comprehensive inspection. FAA needs to direct inspectors to record actual time spent on inspections. If inspections are made simultaneously, the actual time spent on each activity should be recorded. This would also enable FAA to develop more accurate work rates for planning and staffing purposes. New work rates could be readily computed each year by totaling actual time spent on each surveillance activity and calculating average work rates.

Inspecting Maintenance Records

Inspectors' review of airline maintenance records were superficial and did not independently verify recorded work was done in accordance with FAA-approved procedures. During 1990, an FAA investigation of a major airline found scheduled maintenance and repairs were not done, but maintenance records were falsified to show the work had been done. Guidance to inspectors for reviewing maintenance work was general and directed inspectors to determine whether:

> Approved current work forms and records are being used for performing work, and are complete with all required signatures, and are accounted for, including carry over items.

As part of this audit, we made three specific tests at other airlines to go beyond a review of forms. These tests were designed to check items that were abused by the airline when falsifying maintenance records.

Repetitive Problems In Aircraft Logbooks - At one airline, we identified a problem that was repetitively recorded 13 times in the aircraft logbook within 3 months. Logbooks also revealed two instances when "minimum equipment list" items were not corrected for 3 and 60 days beyond the 10-day limit. Federal Aviation Regulations, Part 91.30, prohibit airlines from operating multiengine civil aircraft with inoperable instruments or equipment unless authorized under an FAA-approved Minimum Equipment List. FAA filed three enforcement investigative reports as a result of our disclosures. We also found another airline had improperly categorized two maintenance items in the logbooks thereby inappropriately extending repair time. The airline took corrective action after we notified the FAA inspector.

Matching Signatures - At two major airlines, we found seven instances where supervisors signed for work done by mechanics although the airlines' general maintenance manual, approved by FAA, stated an employee should not sign for work done by another employee. However, maintenance records did not always identify the mechanics who did the work, so confirmation could not be made to determine whether the recorded work was actually done. Supervisors also reported they completed the paperwork for mechanics to save time and return the aircraft back to revenue service. Therefore, as an earlier FAA investigation revealed, supervisors may be signing for work not actually done, or the work may be incomplete or unsatisfactory. At another airline, we found one instance where a supervisor used a former mechanic's number to request information, which violated the airlines' procedures for accountability.

Comparing Part Records - Review of records for oil filter changes at one airline showed 12 instances where oil filter changes were recorded in aircraft maintenance records, but no record was found showing oil filters were issued for the particular aircraft. We could not substantiate the oil changes were made due to lack of records.

Although the audit did not confirm fraudulent maintenance practices, it disclosed four airlines violated FAA-approved procedures for deferring maintenance repairs, violated sign-off procedures on completed maintenance work, and failed to record parts used. None of the deficiencies we identified would have been identified by FAA inspectors' standard practice of reviewing only the maintenance records. These violations support the need for FAA to expand its inspection effort on aircraft maintenance records.

Reporting And Following Up On Identified Deficiencies

Inspectors in all seven district offices did not properly report or follow up on deficiencies identified during ramp inspections we observed and, in two district offices, our followup showed airlines had not properly corrected deficiencies.

According to the Program Tracking and Reporting Subsystem Procedures Manual, inspectors were required to record inspection results with a result code that defined the overall results of the inspection. One of these codes, an "F" (Follow-up), ". . . indicates potential problems were identified and follow-up action was required before the activity could be closed. . . ." Using an "F" also indicates a follow-up inspection in the future is needed to assure and confirm compliance.

We observed 60 ramp inspections during which 92 deficiencies were identified which required airlines to make corrective repairs. However, we found inspectors did not code 71 of the 92 (77 percent) deficiencies with an "F" results code although they had not verified the airlines made the required corrective repairs during the inspection. Instead, the inspectors coded these 71 inspections as either "S" (Satisfactory), or "I" (Information). According to the manual, "S" and "I" results codes should be used only when full compliance was observed during an inspection or when results were satisfactory but information pertinent to future surveillance of the activity was recorded.

Inspectors also notified two airlines of five deficiencies but the inspectors did not record these deficiencies in inspection reports; therefore, neither the inspectors nor their supervisors realized future followup was needed to ensure compliance. Inspectors also improperly recorded deficiencies by reporting deficiencies were "fixed on the spot" or "corrected on the spot." Although the deficiencies were brought to the attention of airline officials, we did not observe the deficiencies being fixed or corrected as reported by the inspectors.

At our request, inspectors followed up to determine whether airlines' corrective actions were proper and timely. We found 6 of 92 instances where one airline did not make the necessary repairs or properly record the deficiency. To illustrate, the airline chose to defer repairing a broken aisle emergency track lighting and a broken storage compartment latch on two aircraft. Rather than making repairs, mechanics taped the track lighting to the floor and taped the latch. These deficiencies were then placed on the deferred maintenance "open item list" which allowed aircraft repairs to be deferred up to 60 days. However, both deficiencies involved airworthy (safety related) items and should have been repaired within a 10-day limit.

As a result of our observations made during the ramp inspections and our follow-up actions, the inspectors notified the airline of the deficiencies and improper actions. The airline immediately removed two aircraft from revenue service and repaired the deficiencies.

Supervision And Documentation Of Inspectors' Work

Supervisors provided insufficient oversight to assure quality inspections and reports. The Comptroller General of the United States issued internal control standards to be followed by executive agencies in establishing and maintaining systems of internal controls. These standards, mandated by the Federal Managers' Financial Integrity Act of 1982, state:

> Qualified and continuous supervision is to be provided to ensure internal control objectives are achieved. This standard requires supervisors to continuously review and approve the assigned work of their staffs.

Supervisors at the seven district offices did not consistently review and approve inspections and reports to ensure high-quality inspections. While only three of seven district offices had established goals for supervisors to accompany inspectors during inspections, most supervisors had not met their goals during FY 1990 or FY 1991. Furthermore, our review of inspection reports for 1 month at each district office disclosed 35 percent of reports did not evidence supervisory review.

Internal control standards further dictate:

> . . . all transactions and other significant events are to be clearly documented, and the documentation is to be readily available for examination. . . . Documentation . . . should facilitate tracing the transaction or event and related information from before it occurs, while it is in process, to after it is completed.

Our analyses of inspections identified discrepancies, such as inspections recorded on inspectors' day off and in high numbers on some days, for which we could not trace and confirm if inspections were actually made.

FAA limited the amount of documentation required on inspections in order to minimize the administrative workload. For example, the inspectors do not sign the logbook maintained in each aircraft. Requiring inspectors to sign and date the aircraft logbooks when inspecting aircraft would provide increased assurance that inspections recorded were made, without increasing the administrative workload. This would enable FAA to confirm and control improper reporting practices when they occur.

Recommendations

We recommend the FAA Administrator:

1. Revise Inspectors' Handbooks to require inspectors to complete all elements on the job aids, when conditions permit, and to describe in the reports why and how the inspection was limited in scope.

2. Revise the Program Tracking and Reporting Subsystem Procedures Manual to direct inspectors to charge actual time when reporting surveillance accomplishments.

3. Develop a job aid for inspecting aircraft maintenance records. The job aid should, at a minimum, require inspectors to:

   a. Review aircraft logbooks for evidence of repetitive problems and improper maintenance procedures.

   b. Compare mechanic signatures on records to an authorized list of mechanics.

   c. Compare material and parts listed on aircraft maintenance records to operators' material issue records.

4. Expand Inspectors' Handbooks to establish procedures for followup on deficiencies identified during inspections and prescribe time limits for making followup reviews.

5. Revise Inspectors' Handbooks to direct inspectors to record deficiencies noted during inspections into the operators'

aircraft logbook and to sign and date the aircraft logbook upon completion of the aircraft inspection.

6. Expand Inspectors' Handbooks to establish procedures and responsibilities for supervisory review of inspections and reports.

Management Response

FAA officials did not provide a written response to the draft report. In accordance with DOT Order 8000.1C, FAA officials are to advise us within 60 days of actions taken or planned regarding each audit recommendation.

Finding D. Reporting Violations

Inspectors did not report all violations identified during inspections. This occurred because inspectors had varying interpretations of FAA's enforcement policy. Consequently, safety requirements were not uniformly enforced and FAA's system for tracking violations did not provide an accurate record of aircraft operators' safety status.

Discussion

FAA Order 2150.3A, Compliance And Enforcement Program, provided compliance and enforcement guidance to all FAA officials. Chapter 2 of the Order, Enforcement Objectives and Policy, stipulated:

> To be effective, the agency's program for enforcement must be fair, reasonable, and consistent and must be perceived as fair by those subject to regulation. . . . Every alleged violation must be identified, reported, and processed in a timely and otherwise appropriate manner. . . . Similar violations under similar circumstances should result in the same type of enforcement action and sanction. . . . Where a violation does not require legal enforcement action, a Warning Notice or Letter of Correction may be issued as provided in FAR (Federal Aviation Regulation) Section 13.11. It is the inspector's responsibility initially to recommend the appropriate enforcement action. . . . (Parenthetical phrase and emphasis added.)

Common violations and suggested sanctions were identified in Appendix 4 to the Order.

FAA's Program Tracking and Reporting Subsystem Procedures Manual stated when an inspector finds a violation, the inspector must code the inspection report result as "E" (Enforcement) to indicate a violation was found and an enforcement action opened. We analyzed enforcement actions recorded for FY 1988 through FY 1990. The analysis showed less than 1 percent of FAA inspections resulted in the identification of violations, and this percentage had declined.

Enforcement Actions
FY 1988 Through FY 1990

Fiscal Year	Total Inspections	Reported Enforcements Number And Percent
1988	250,000	1,323 (.53)
1989	312,000	1,298 (.42)
1990	271,000	1,002 (.37)

Further analysis of FY 1990 inspection results disclosed a small number of inspectors and district offices accounted for most of the 123 enforcement actions taken against 14 major airlines[3]. The enforcement action types varied; however, we found most were not aircraft related problems but rather improper airline administrative procedures. For example, 17 actions related to aircrew or aircraft manuals not being current, and 8 actions related to airline employees not having proper certificates or ratings. Of the more than 1,000 inspectors assigned to the air carrier program, 12 inspectors reported 51 (41 percent) of the 123 enforcement actions. Six of 79 district offices that inspected the major airlines accounted for 70 (56 percent) of the 123 enforcement actions while 49 district offices recorded no enforcement actions.

We also identified inconsistencies among district offices in initiating enforcement actions. The audit identified 21 instances within three district offices where airlines did not notify FAA, in writing, within the prescribed 24 hours that repairs of "minimum equipment list" items were extended. These written notices enable FAA to independently confirm if extensions were properly justified and repairs were not deferred for convenience. These 21 instances involved three airlines. One district office filed eight enforcement investigative reports against an airline for filing reports 1 day beyond the 24-hour limit. The remaining two district offices did not initiate enforcement actions against two airlines, who filed 13 reports from 1 to 8 days late.

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[3] The airlines reviewed included American, Alaska, Continental, Delta, Eastern, American West, Northwest, Pan American, Trans World Airlines, United, US Air, Southwest, Hawaiian, and Midway.

We also identified 5 instances where two airlines did not repair "minimum equipment list" items within prescribed time limits. One district office initiated two enforcement actions for exceeding prescribed time limits, while the other office took no enforcement action. For example, one district office filed an enforcement investigative report recommending a civil penalty of $10,000 against an airline for failing to repair a selective call system within 3 days of the allotted repair time. In another district, aisle track lights were repaired 9 days beyond the authorized repair time and no enforcement action was taken. The sanction guidelines provided in Appendix 4 of Order 2150.3A provide that failure to properly repair equipment is subject to the maximum civil penalty ($10,000) to suspension until proper repair is made.

Inspectors and supervisors we interviewed had varying interpretations of FAA's enforcement policy, many of which did not conform with FAA policy, stated in FAA Order 2150.3A, to identify and report every violation. For example, officials in two district offices stated the FAA Administrator's Policy on Compliance and Enforcement, issued July 1990, had formulated a new posture to "lighten up" on reporting violations.

The Administrator's July 12, 1990 policy statement explained new initiatives for (i) providing remedial training to general aviation pilots, and (ii) encouraging airlines to self-disclose violations to FAA. The policy did not, however, eliminate the requirement to identify and report violations. The policy provided the following direction:

> When a violation occurs, it is essential that FAA personnel take action consistent with this Order. That action can be administrative, or legal, . . . In cases which meet the applicable criteria, and in which a strong deterrent is not necessary or appropriate, the use of administrative action in the form of a Letter of Warning or a Letter of Correction incorporating specific corrective action is encouraged. . . . In cases involving general aviation pilots, FAA personnel should consider the availability of the Accident Prevention Program to promote awareness and understanding of regulations, and to provide guidance to airmen through a structured program of remedial training after violations occur. . . . Air carriers are mandated by statute to provide their services with the highest possible degree of safety. . . . A carrier that detects an inadvertent violation, promptly

> reports it to the FAA, takes immediate corrective action to return to compliance, and develops a satisfactory remedy to preclude recurrence of the same problem, will not be penalized.

Inspectors in four district offices stated they did not initiate enforcement action if the problem was readily corrected. Inspectors and supervisors in two offices also stated the paperwork and time required to open an enforcement action discouraged them from doing so.

The practice of not reporting every violation diminishes FAA's ability to effectively monitor and enforce compliance. The recording of each violation in the Program Tracking and Reporting Subsystem is necessary to determine if a deficiency is isolated or systemic in nature. If an isolated instance, the inspector should issue a Letter of Warning or a Letter of Correction in accordance with FAA policy. If the problem is systemic, a complete record of the instances will provide the inspector with a better basis on which to recommend appropriate administrative or legal action.

Recommendation

We recommend the FAA Administrator issue a policy statement requiring all inspectors to review common violations in FAA Order 2150.3A and make it clear that these violations must be reported when identified during inspections.

Management Response

FAA officials did not provide a written response to the draft report. In accordance with DOT Order 8000.1C, FAA officials are to advise us within 60 days of actions taken or planned regarding each audit recommendation.

Finding E. Reporting Fraud To The Office Of Inspector General

FAA did not report instances of fraud identified during inspections to OIG. FAA attorneys, Headquarters officials, and inspectors were not familiar with OIG authority to investigate fraud by individuals and companies licensed by FAA. As a result, OIG was preempted from reviewing and investigating fraudulent activities within its statutory responsibility.

Discussion

The OIG derived its criminal jurisdiction from the Inspector General Act of 1978.[4] The Act provided the Inspector General broad authority to conduct and supervise investigations relating to the programs and operations of the Department, and to prevent and detect fraud and abuse in such programs and operations. The investigative responsibilities of the OIG were described in DOT Order 8000.4 and FAA Order 1600.38B.

FAA Order 2150.3A, Compliance And Enforcement Program, described the authority, responsibilities, policies, procedures, and legal aspects of the FAA compliance and enforcement program. Chapter 6 of the Order, Criminal Investigations, stated:

> When it appears to an FAA employee that there may be a violation of any criminal statute, in a matter involving aviation, that person shall immediately bring the matter to the attention of the regional office. The regional manager shall immediately coordinate with the Civil Aviation Security (CAS) Division and the Assistant Chief Counsel in accordance with Order 1600.38B, for referral to the appropriate office or agency for investigation, or to the U. S. Attorney for prosecution.

FAA Order 1600.38B, FAA Investigations Program, referenced in the above quote, prescribed the investigative policy and standards to be implemented by Civil Aviation Security offices. This Order states OIG has responsibility for investigating a variety of FAA activities and directed all employees to report any actual or suspected offenses to OIG.

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[4] An Assistant Attorney General's opinion, issued December 19, 1989, confirmed that". . . pursuant to section 9(a)(1)(k) of the Inspector General Act, the DOT-IG has the same broad authority to investigate allegations of fraud against DOT programs and operations that the investigation units transferred into that office possessed at the time the Act became law."

Reporting Fraud

Recent instances of fraud, identified by inspectors, were not reported to OIG as required. For example, in February 1989 an informant advised inspectors in the Eastern Region that members of management of a major airline were falsifying maintenance records by signing for work that was never accomplished. Even though FAA inspectors found the allegations to be true, the allegations and inspection findings were not reported to OIG.

This audit identified two other instances in the Western-Pacific Region where FAA inspectors disclosed employees of two major airlines had falsified maintenance records. In one instance, an inspector, responding to a lead from an anonymous caller, confirmed an inspection of a landing gear was not made as recorded and determined the mechanic's signature was forged. In the other instance, an inspector determined repair work recorded in the aircraft logbook as accomplished had in fact not been done. Although inspectors initiated enforcement actions against the companies and employees, these instances were not reported to OIG.

Interviews with FAA inspectors, attorneys, and security officials in the regions and Headquarters disclosed a lack of knowledge concerning the Inspector General's role in investigating potential criminal violations committed by individuals and companies regulated by FAA. For example, the Assistant Chief Counsel for the Eastern Region stated fraudulent activities were not referred to OIG because it was her understanding the Inspector General only investigated matters internal to the Department. In the Western-Pacific Region, the Assistant Chief Counsel stated while he was aware of the requirement to report suspected fraud to the Inspector General, the responsibility for reporting such matters was assigned to Civil Aviation Security in FAA Order 1600.38B. The Assistant Chief Counsel did not, however, report the two instances of falsified maintenance records to Civil Aviation Security officials because Counsel judged the magnitude of the instances did not warrant a referral. Civil Aviation Security officials in the Western-Pacific Region stated that Order 1600.38B was unclear and confusing, particularly as it applied to reporting violations.

Not reporting such cases to OIG preempts the Inspector General from participating in investigations within its statutory responsibility. There was also evidence FAA inspectors did not fully and properly investigate the identified instances of fraud. On December 10, 1990, the OIG reported investigative deficiencies to the Deputy Federal Aviation Administrator. The OIG will work to educate the DOT workforce on the importance of reporting fraud and coordinating investigative efforts.

Recommendation

We recommend the FAA Administrator revise FAA Order 2150.3A to (i) identify the Inspector General's investigative role, (ii) provide guidelines to inspectors for identifying potential criminal violations, and, (iii) assign the Regional Counsels' office with the responsibility for referring potential criminal matters to OIG.

Management Response

FAA officials did not provide a written response to the draft report. In accordance with DOT Order 8000.1C, FAA officials are to advise us within 60 days of actions taken or planned regarding each audit recommendation.

III. INTERNAL CONTROL ASSESSMENTS

In our opinion, the internal control weaknesses identified in this report meet DOT criteria of being material and should be reported to the Secretary for inclusion in the annual report to the President and Congress as required by the Federal Managers' Financial Integrity Act of 1982. FAA's most recent internal control assessments classified airlines and general aviation surveillance as a medium risk. Department policy states a weakness is considered material if it prevented or is likely to prevent substantial achievement of an assessable unit's program objectives. As detailed in finding B, FAA district offices did not accomplish FAA mandated "required" inspections during FY 1989 and FY 1990. Inspectors also spent substantially less than 35 percent of their available time on surveillance.

Department policy also provides a weakness which has or could result in (i) adverse publicity or embarrassment to the Department which diminishes its credibility or reputation, or (ii) adverse impact on the public or third parties should also be classified as material. The weaknesses identified in findings A, B, C, and D directly affect the quality of FAA inspections which is subject to adverse publicity. We therefore recommend the FAA Administrator report weaknesses cited in this report to the Secretary for inclusion in the annual report to the President and Congress as required by the Federal Managers' Financial Integrity Act.

EXHIBIT A
(1 page)

INSPECTIONS BY PILOTS
INSPECTORS NOT "TYPE RATED" OR CURRENT ON TRAINING

District Office	Total Inspections*	Inspections-Inspectors Not Type Rated	Inspections-Inspectors Not Current	Inspections-Inspectors On Waivers
Central-05	770	70	194	63
Eastern-15	1,132	242	425	7
G. Lakes-31	838	296	126	6
NW Mountain-01	786	38	76	83
Southern-11	1,540	259	659	76
Southwest-09	2,103	144	819	139
W. Pacific-23	524	68	59	85
Totals	7,873	1,117	2,358	459

*Inspections made by 130 inspectors in seven district offices during FY 1989 and FY 1990.

EXHIBIT B
(1 page)

REQUIRED INSPECTIONS PLANNED BUT NOT ACCOMPLISHED

Region	Total Planned 1989	Total Planned 1990	Total Not Completed 1989	Total Not Completed 1990
Alaska	4,690	4,300	1,169	1,506
Central	7,185	7,629	655	732
Eastern	15,676	13,918	3,486	2,552
G. Lakes	16,828	16,759	3,433	4,414
New England	3,975	4,239	75	204
NW Mountain	7,578	10,694	270	659
Southern	22,147	16,868	8,290	4,299
Southwest	14,645	13,005	635	729
W. Pacific	13,408	15,657	737	442
Totals	106,132	103,069	18,750	15,537
Percent Not Completed			18%	15%

EXHIBIT C
(2 pages)

OIG AND GAO REPORTS

This is a list of OIG and GAO reports issued since October 1, 1986 that relate to the FAA Aviation Inspection Program.

REPORT NUMBER	REPORT TITLE	REPORT DATE
OIG R9-FA-1-017	Report on Audit of FAA Surveillance of Repair Stations, Mechanics, and DMEs in the Western-Pacific Region	November 29, 1990
OIG R6-FA-0-066	Report on Audit of Helicopter Inspection Program - Federal Aviation Administration	March 5, 1990
OIG R0-FA-9-126	Survey of FAA's Compliance with Inspection Surveillance Requirements in the Northwest Mountain Region	September 27, 1989
OIG AV-FA-9-025	Report on Audit of Requirements for and Utilization of Aircraft Federal Aviation Administration	June 19, 1989
OIG R6-FA-9-078	Report on Audit of Flight Standards Inspection Program in Southwest Region	March 17, 1989
OIG R9-FA-9-034	Report on Audit of Agency Flight Training, FAA Western-Pacific Region	October 28, 1988
OIG AV-FA-7-012	Report on Audit of FAA's Inspection and Surveillance Activities Over Air Carrier Contract Maintenance	December 29, 1986

REPORT NO.	REPORT TITLE	REPORT DATE
GAO/RCED-92-14	AVIATION SAFETY Problems Persist in FAA's Inspection Program	November 1991
GAO/T-RCED-91-63	TESTIMONY FAA Budget Key Issues in Facilities & Equipment and Operations Account Need Resolution	June 14, 1991
GAO/RCED-91-112	TRANSPORTATION Status of GAO's Open Recommendation on Transportation Policies and Programs	April 1991
GAO/T-RCED-90-91	TESTIMONY Serious Shortcomings in FAA's Training Program Must Be Remedied	June 21, 1990
GAO/RCED-90-94	AVIATION SAFETY Management Improvement Needed in FAA's Airworthiness Directive Program	February 1990
GAO/RCED-90-36	AVIATION SAFETY FAA's Safety Inspection Management System Lacks Adequate Oversight	November 1989
GAO/T-RCED-90-2	TESTIMONY Meeting the Aging Aircraft Challenge: Status and Opportunities	October 10, 1989
GAO/RCED-89-168	AVIATION TRAINING FAA Aviation Safety Inspectors Are Not Receiving Needed Training	September 1989
GAO/RCED-88-160	AVIATION SECURITY Corrective Actions Underway, but Better Inspection Guidance Still Needed	August 1988

EXHIBIT D
(1 page)

AUDIT TEAM MEMBERS

This is a list of audit team members who participated in the Audit of the FAA Aviation Inspection Program.

Audit Control Point
Region VI - Fort Worth, TX

John L. Meche, Regional Manager
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Stephen C. Nesbitt, Auditor
Thomas F. Lowes, Auditor
Mark C. Peet, Auditor
Susan N. Nesbitt, Auditor
Deliena Darnell, Special Agent

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Julie Ahle, Auditor

Region IX - San Francisco, CA

Carlos Velasco, Superv. Auditor
Alan Dethlefson, Auditor-In-Charge
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Steven Townsend, Auditor
Gary Chahall, Auditor

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James H. Diecker, Superv. Auditor
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Shelly L. Holmes, Auditor
Tristan Linkert, Special Agent

Washington, D.C.

Joan Holland, Special Agent
Heather Yanello-Ambrose, Special Agent
Sandra Emrick, Computer Specialist
Frank C. Sonsini, Statistical Advisor

U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Inspector General

Memorandum

Subject INFORMATION: Management Advisory Report on Survey of FAA Surveillance of Air Taxi and Commuter Operators
Report No. R5-FA-3-027

Date February 26, 1993

From Ronald H. Hoogenboom
Regional Manager, Chicago

Reply to Attn of JRA-5

To Edward J. Phillips, Regional Administrator
Federal Aviation Administration
Great Lakes Region, Des Plaines, IL

We completed the survey of the Federal Aviation Administration's (FAA) surveillance of Air Taxi and Commuter operators in the Great Lakes Region (Region). The survey objectives were to (i) evaluate FAA's surveillance of Air Taxi and Commuter operators and (ii) examine how FAA ensures that parts used in maintaining Air Taxi and Commuter aircraft are properly certified. Audit effort relating to the first objective was curtailed because similar issues were addressed in Office of Inspector General (OIG) Report No. R6-FA-2-004, Audit of Aviation Inspection Program, dated May 29, 1992. Survey results relating to aviation parts will be included in a summary report on FAA's monitoring of aircraft parts. That summary report will be issued later this year.

The Federal Aviation Act of 1958 states that FAA is responsible for, among other things, conducting periodic surveillance inspections to ensure continued compliance with safety regulations. The FAA Flight Standards Division (FSD) conducts inspections of Air Taxis and Commuters including operations, maintenance, and avionics. The focus of operations inspections is pilot certification and performance, flight crew training, and in-flight record keeping. Maintenance inspections evaluate an airline's maintenance program, including personnel training policies and procedures. Avionics inspections concentrate on aircraft electronic components.

We did not identify any Air Taxi or Commuter operators certificated within the Region that were not inspected during the two years ended September 30, 1991. We did however, identify errors in the National Program Tracking and Reporting Subsystem (NPTRS).

During our limited review of the NPTRS, we identified errors of the type that can be prevented by installing appropriate system controls. However, since we were advised that FAA intends to modify the NPTRS system, we did not identify the frequency with which these errors were occurring or explore this issue further. The following errors are presented for management to consider while developing planned modifications to the NPTRS.

- Inspection results were not always coded properly. For example, although the inspection result code "C" (Complete) is not allowed for surveillance activity, it appeared in the NPTRS database. This error was limited to FY 1990 and did not appear in FY 1991.
- Inspection completion dates were sometimes in error. For example, inspection completion dates preceded start dates or completion dates indicated that inspections occurred before or after the reported fiscal year.
- In some cases, inspections were coded as Air Taxi inspections when the airline call letters indicated the airline was a pilot school or agricultural operator.

We appreciate the courtesies and cooperation extended by your staff. Since this report does not contain any recommendations, no further response is required. If you have any questions regarding this report, please contact me at (312) 353-0104.

#

cc: Departmental Resident Office, GAO-2
FAA Audit Liaison, AAA-60
Associate Administrator for Regulation and Certification, AVR-1

U.S. Department of Transportation
Office of the Secretary of Transportation

Office of Inspector General

Memorandum

Subject: ACTION: Management Advisory on Audit of Helicopter Inspection Requirements, Federal Aviation Administration

Date: JAN 26 1993

From: Lawrence H. Weintrob, Deputy Assistant Inspector General for Auditing

Reply to Attn of: JA-2

To: Associate Administrator for Regulation and Certification
Federal Aviation Administration

We have concluded our audit of Helicopter Inspection Requirements in the FAA. The objectives of the audit were to determine if violations identified by FAA Safety Inspectors are properly reported and resolved and repairs to helicopters incorporate only approved parts.

We reviewed enforcement actions filed during FYs 1991 and 1992 to determine whether enforcement actions were properly reported and resolved. We also discussed with FAA officials what methods were used by inspectors to detect unapproved parts. In addition, we visited Federal Aviation Regulation (FAR) 145 domestic repair stations that perform helicopter repairs. During our visits, we reviewed procurement procedures, receiving activities, supplier audits, and selected parts to evaluate FAA's monitoring of replacement parts.

We concluded FAA acted on violations in accordance with the national enforcement policy stated in FAA Order 2150.3A, "Compliance and Enforcement Program." We reviewed the 27 enforcement actions filed during FY 1991 through FY 1992 against FAR 133 and 135 helicopter operators and FAR 145 domestic repair stations that perform helicopter repairs. We found 23 enforcement actions were filed against 7 of 40 helicopter operators, 3 enforcement actions were filed against 2 of 23 repair stations, and 1 enforcement action was filed against a mechanic with an airframe and powerplant rating. In our opinion, FAA Safety Inspectors properly reported and resolved violations against helicopter operators and repair stations that perform helicopter repairs.

As part of our audit, we also reviewed 293 helicopter parts to determine whether the parts were approved. The results of our review will be included in a summary audit report on FAA's monitoring of aircraft replacement parts. That summary report will be issued later this year.

The courtesy, cooperation, and assistance extended by your staff during the audit were greatly appreciated. If you have any questions or require any additional information, please contact me at 366-1992.

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TAB 4

D&D AIR, INCORPORATED (DISTRIBUTOR)
SUP CASE NUMBER 94-255 (OPENED 5-25-94;REMAINS OPEN)

ALLEGATION

D&D Air, Inc., a Southern California distributor, supplied unapproved parts used on transport aircraft to a large network of customers including air carriers, repair stations, and other distributors.

FAA ACTION

FAA assigned the case to the Los Angeles (LA) MIDO as a priority Category "2". The LA MIDO reviewed documents seized from D&D during an FBI raid and concluded a significant number of parts in D&D's inventory were not FAA approved. After this determination was made, the LA MIDO issued a Letter of Investigation (LOI) to D&D. A "heads up" advisory was also issued in May 1994 to the FAA regions of the operators that D&D sold to. This advisory indicated operators should be warned of D&D and that any findings should be reported. Also, FAA Flight Standards sent a letter in September 1994 to certain air carriers again warning them about D&D, but did not provide part numbers.

FAA's investigation into the D&D case consisted of the following:

- The LA MIDO categorized 17 parts retrieved from D&D's inventory. These 17 parts consisted of two Category 1 parts, five Category 2 parts, and the remaining were Category 3 and 4 parts. The seven Category 1 and 2 parts were sent to McDonnell Douglas Corporation for testing. Six of the 7 parts failed conformity tests and one was incomplete.

- Because of these results, a database was developed based upon sales invoices of the last 18 months to identify customers/users D&D sold to. This database identified 950 type part numbers: 586 McDonnell Douglas aircraft parts, 155 Boeing Aircraft parts, 17 Lockheed aircraft parts, and 192 part numbers that had not been tied to any aircraft models as of January 31, 1995.

- The 950 type part numbers were subsequently evaluated and FAA identified 130 Category 1 and 2 parts that were sold by D&D. There were 82 Category 1 parts and 48 Category 2 parts. In addition, the FAA evaluated the safety critical characteristics of the 130 Category 1 and 2 parts and concluded that 82 were considered more safety critical and could possibly result in an Airworthiness Directive (AD).

The 82 critical part numbers consisted of 63 McDonnell Douglas part numbers, 17 Boeing part numbers, and 2 Lockheed part numbers.

- Instead of issuing an Airworthiness Directive (AD), which could cause a major disruption of air travel and have a large monetary impact on the industry, the LA MIDO decided to physically recover these 82 "safety critical" parts. FAA determined the 82 "safety critical" parts were initially sold to 39 purchasers spread across the country.

- The MIDO contacted 17 purchasers representing sales of 23 of the 82 type parts. Of the 23 type parts, 11 were recovered, 7 were traced to a foreign air carrier, 1 was traced to a domestic air carrier, and the other 4 were not recovered. The other 22 purchasers representing sales of the remaining 59 safety critical parts were not contacted by FAA.

- The LA MIDO had McDonnell Douglas test 2 of the 11 type parts recovered. One failed testing and the other one passed. The part that failed testing was a pin, P/N AJH7378-1, recovered from a Federal Express aircraft. During a September 1994 survey visit to the LA MIDO, we suggested this would now be a good candidate for an AD because it failed testing and there were at least 14 additional pins in the system. Because of our suggestion, the LA MIDO recommended an AD be issued for this part number. However FAA engineering concluded an unsafe condition did not exist and an AD was not justified. This conclusion was based the engineering determination that the part failed due to an understrength shear fuse. Although the shear strength of the part was below the blueprint requirements, it would only lead to nuisance failures of the drive system during normal operation, and cause associated increased pilot workload and schedule disruption. Also, engineers concluded a shear pin nuisance failure due to a pin understrength condition of the magnitude demonstrated in this shear test is unlikely.

- The MIDO discontinued the part recovery process because of lack of resources, time considerations, and lack of cooperation from Flight Standards. Transport Directorate management concluded it was the responsibility of Flight Standards and "handed off" the purchase information to Flight Standards. We have contacted Flight Standards, but we have not determined whether Flight Standards continued the recovery process.

- Because an AD could not be justified and to comply with the SUP Order, the MIDO recommended issuance of a General Aviation

Airworthiness Alert for the 130 critical parts. This recommendation was sent to AFS-300 in February 1995.

- At this point, the LA MIDO's emphasis shifted to identification and documentation of manufacturers/suppliers of parts to D&D. Manufacturing records seized from D&D were used to identify these suppliers. The LA MIDO submitted SUPs for 74 of the 130 Category 1 and 2 parts. The LA MIDO does not have manufacturing documentation for the remaining 56 parts, so they will most likely never be investigated. As a result of these SUPs, FAA MIDO inspectors are assessing the quality control systems of each supplier and making a determination as to whether the parts in question were manufactured under the proper quality assurance system. These investigations are ongoing.

OIG FINDINGS

- FAA only recovered 11 of the 82 safety critical parts and only had 2 of these 11 tested. Based on the fact that one of these two failed testing and prior testing of parts seized from D&D resulted in a high failure rate, we requested the LA MIDO have the other parts tested as well.

- The LA MIDO agreed to have six of the nine remaining recovered parts tested. The other three cannot be tested because two were destroyed and one is in the custody of DCIS. This testing is not complete.

- The recommended alert for the 130 Category 1 and 2 has now been issued. FAA issued it in the Service Difficulty Report (SDR) Summary because the usual publication, Advisory Circular 43-16, is not distributed to all potential customers. The FAA publishes the SDR Summary weekly and distributes it to approximately 800 entities including air carriers, large repair stations, and foreign carriers. The SDR will recommend owners, operators, maintenance entities, and manufacturers inspect their aircraft and/or stock for each of the listed part numbers that apply to their aircraft model/models, assemblies and /or subassemblies of the listed aircraft affected. The SDR will warn that all the part numbers purchased from D&D Air Inc. should be considered suspect. Note: The wording in this alert will not help industry identify the parts sold through another distributor.

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TAB 5

FAA SUP REPORTS FROM 1989 TO PRESENT

1989 SUP REPORTS

9 REPORTS

Safety Categories (CAT)

3 CAT THREE
6 CAT FOUR

1990 SUP REPORTS

9 REPORTS

Safety Categories

1 CAT THREE
8 CAT FOUR

1991 SUP REPORTS

52 REPORTS

Safety Categories

1 CAT ONE
13 CAT TWO
13 CAT THREE
25 CAT FOUR

1992 SUP REPORTS

362 REPORTS

Safety Categories

10 CAT ONE
69 CAT TWO
88 CAT THREE
172 CAT FOUR
23 CAT FIVE

1993 SUP REPORTS

239 REPORTS

Safety Categories

13 CAT ONE
16 CAT TWO
11 CAT THREE
117 CAT FOUR
82 CAT FIVE

1994 SUP REPORTS

411 REPORTS

Safety Categories

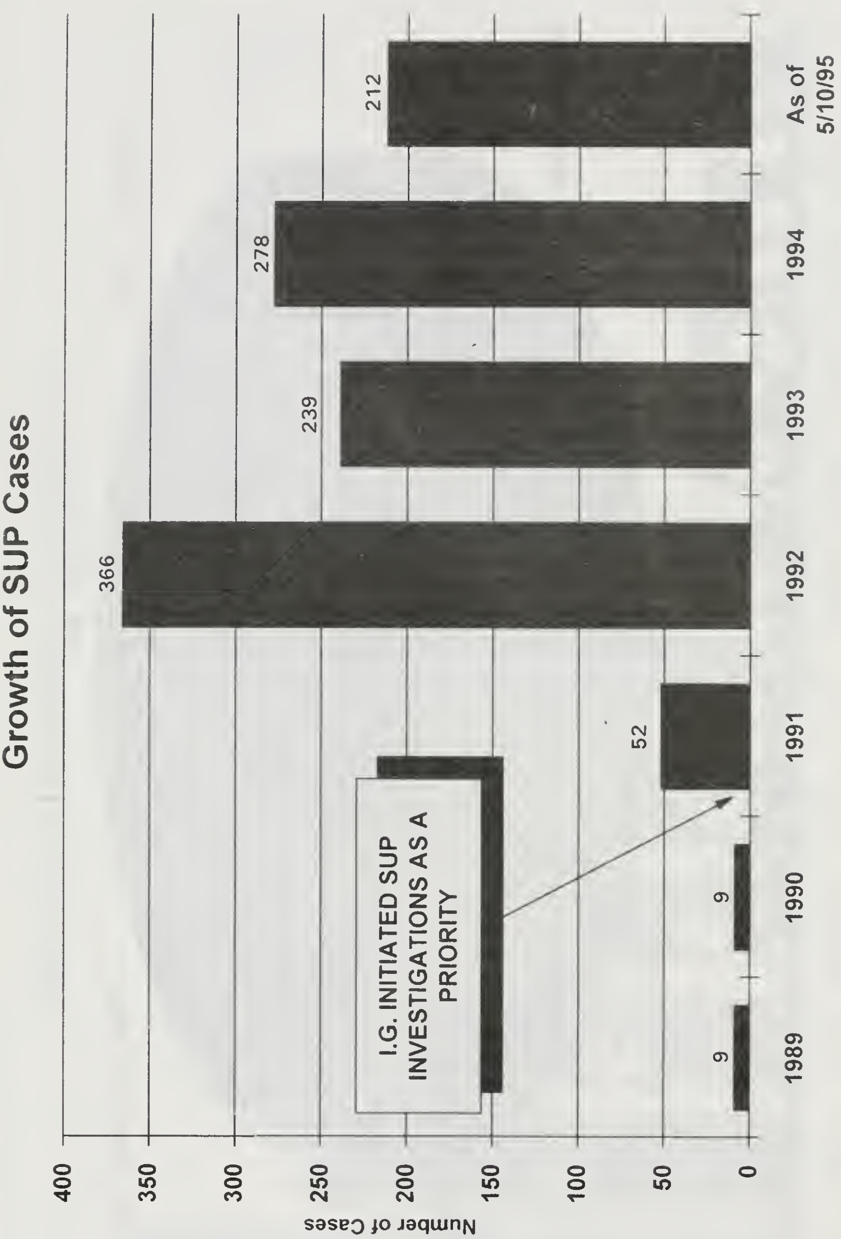
30 CAT ONE
108 CAT TWO
51 CAT THREE
218 CAT FOUR
4 CAT FIVE

1995 SUP REPORTS

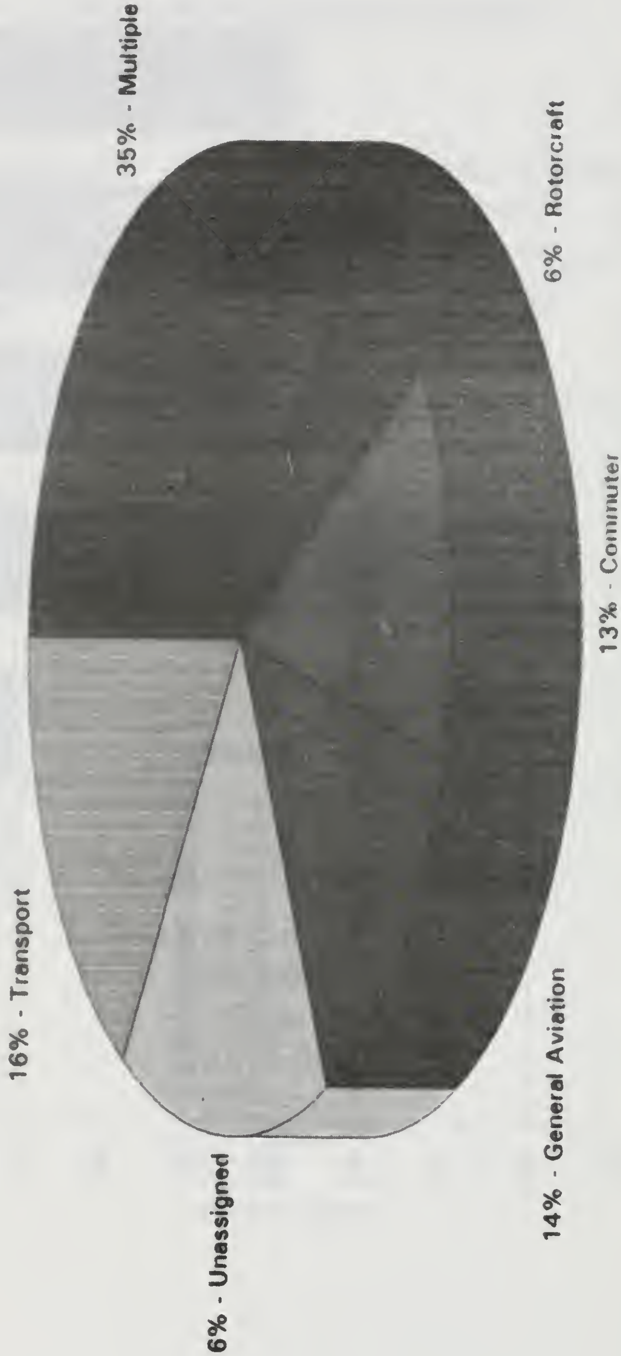
212 REPORTS

Safety Categories

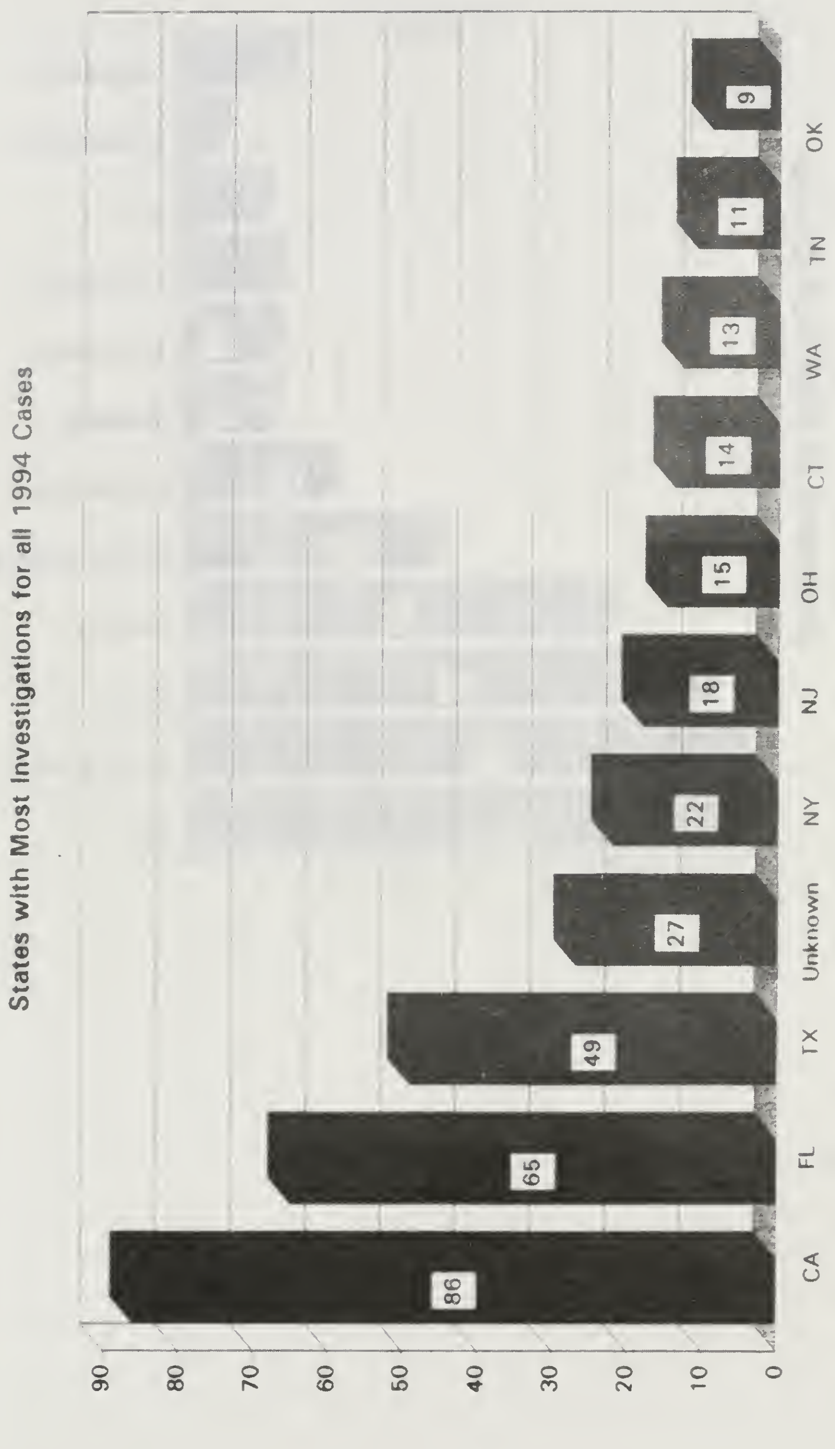
56 CAT ONE
49 CAT TWO
48 CAT THREE
54 CAT FOUR
4 CAT FIVE



Growth of SUP Cases

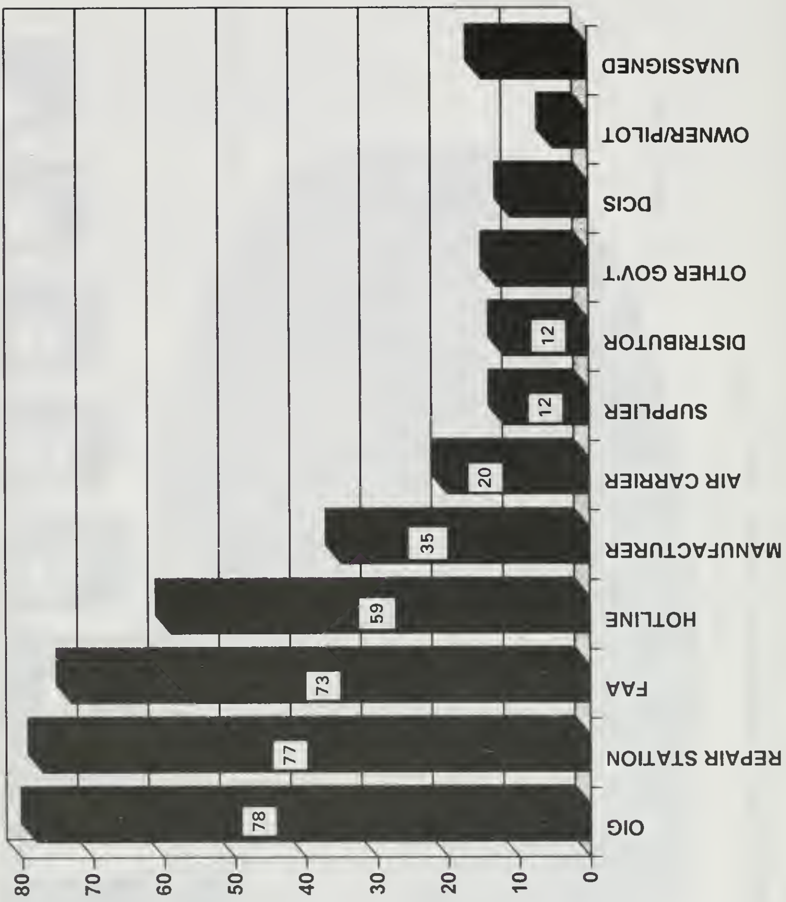


Aircraft Categories for 1994 SUP Cases



States with Most Investigations for all 1994 Cases

Reporters of 1994 SUP Cases



TAB 6

U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: INFORMATION: AIR-200 Guidance Memorandum #95-3, FAA Order 8120.10, Suspected Unapproved Part Program

Date: March 1, 1995

From: Manager, Production and Airworthiness Certification Division, AIR-200
Manager, Aircraft Maintenance Division, AFS-300

Reply to Attn of: D. Nott
(202) 267-8361

To: All Aircraft Certification Offices and Branches
All Manufacturing Inspection Offices and District/Satellite Offices
All Flight Standards Regional and Satellite Offices

This office has received several requests for clarification of the definition of a suspect unapproved part (SUP) as stated in paragraph 4.m. of the subject order. Specifically, the words needing clarification are "...does not conform to an FAA-approved type design." Some reporters have interpreted this to mean that they should submit a SUP when they find a part that departs in any way from the design data, regardless of who produced the part.

Parts produced under an FAA-approved quality control system by a production approval holder (PAH) or repaired by an FAA-approved repair source, which are determined to depart from the type design, were never intended to be investigated under the SUP program. These nonconformances are considered departures or escapes from the PAH's or maintenance facility's quality system and should be reported, as applicable, via:

a. A service difficulty report (SDR) per FAA Order 8010.2, Flight Standards Service Difficulty Program;

b. A malfunction or defect (M or D) report per Advisory Circular 20-109, Service Difficulty Program (General Aviation), or FAA Order 8010.2; or

c. In accordance with § 21.3 of the Federal Aviation Regulations.

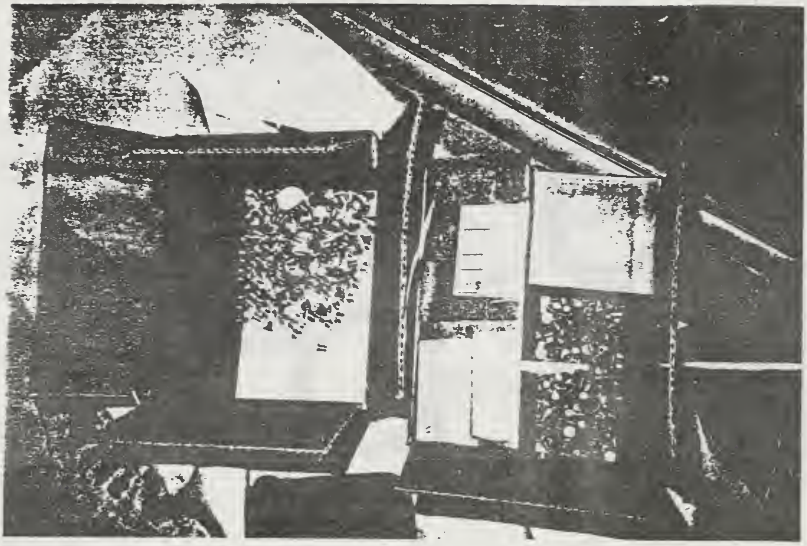
If a PAH or certificated maintenance facility finds that nonconforming parts have escaped their quality system, they are encouraged to report via the self disclosure provisions of FAA Order 2150.3A, Compliance and Enforcement Program.

One must also remember that a part which departs from the original design or data, but has been properly dispositioned through the facility's approved change control system under FAR parts 21 or 43, are considered to conform and are approved parts.

/S/ /S/

Michael Gallagher Frederick J. Leonelli

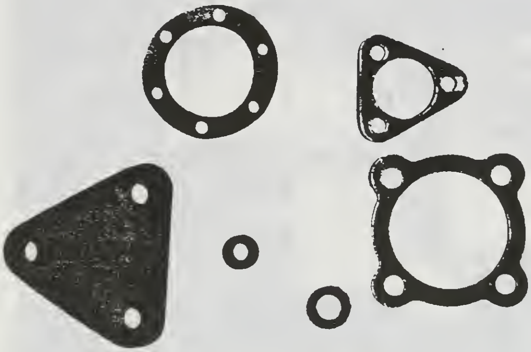
TAB 7



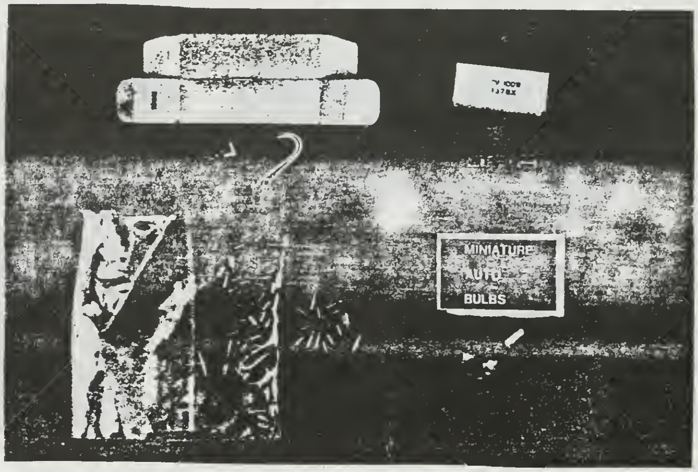
Parts as small as rivets are being conterfeited. These rivets failed testing.

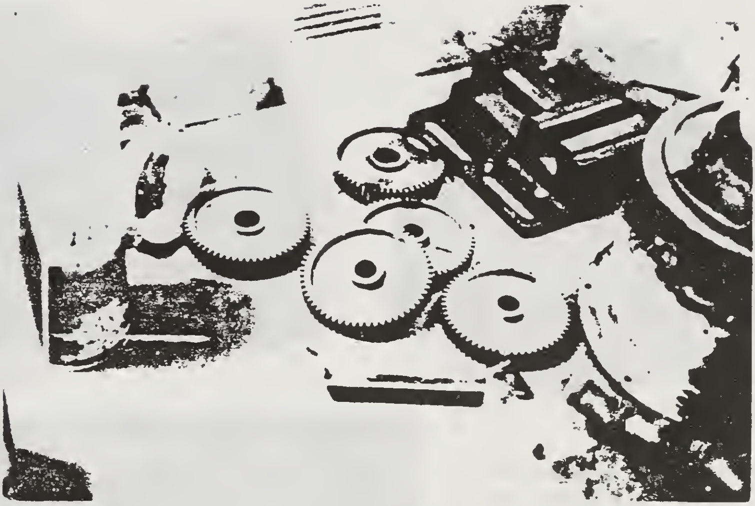
The top center fastener (without the head marking) is a counterfeit fastener which was sold to a commercial air carrier. The parts distributor mixed counterfeit fasteners in with approved fasteners to make them harder to detect.

Any part can be counterfeited. A parts distributor had seals manufactured and falsely represented them as approved parts. The seals, one of which could effect flight safety, failed testing.



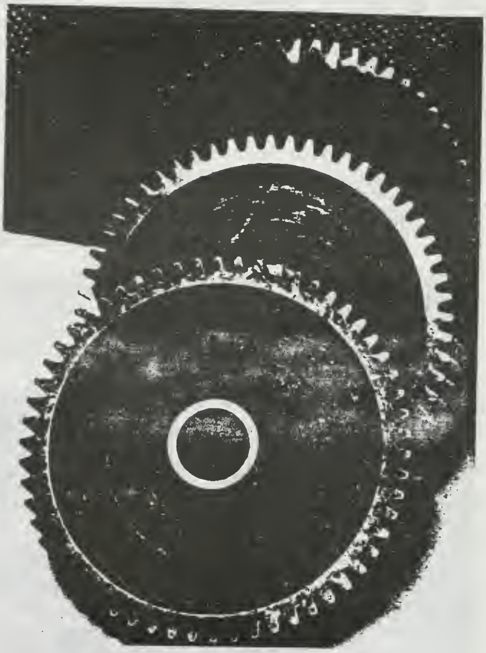
Aircraft lights have also been manufactured without approval and represented as approved parts. Some of these parts have also failed testing.



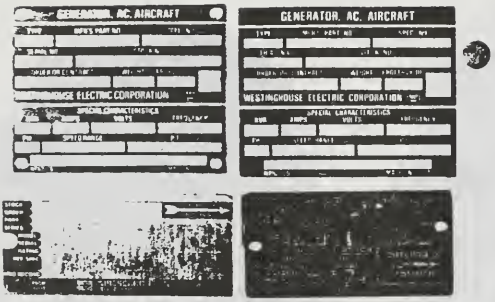


During the execution of a search warrant on a parts distributor in South Florida, employees were observed making unauthorized repairs to gears and starter housings for use in overhauls and repairs.

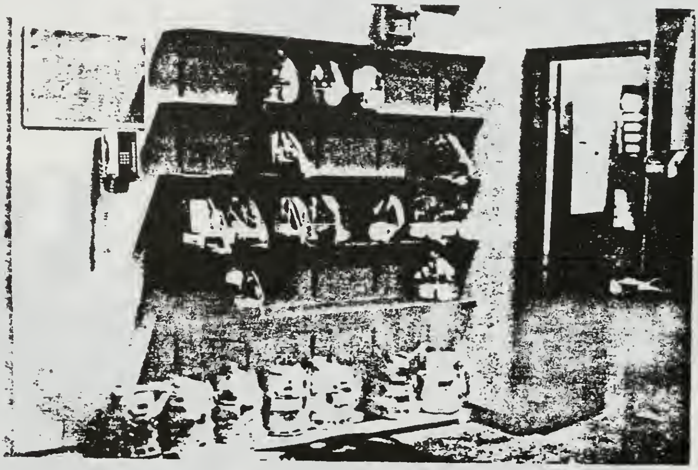
Once the parts are filled, sanded or sandblasted and painted, they are difficult to detect. Most of the suspect parts are used inside the component and therefore may only be detected after a failure. Reworked gear in lower right photo lacks a required part number.



Parts with unauthorized repairs are reused in the overhaul process.
Above: A starter T-wheel with a twisted shaft.
Right: Veins on a starter T-wheel which were re-welded and ground down.



Due to lack of traceability, Original Equipment Manufacturer data plates are also counterfeited and then affixed to parts. Red dots indicate the counterfeit data plates

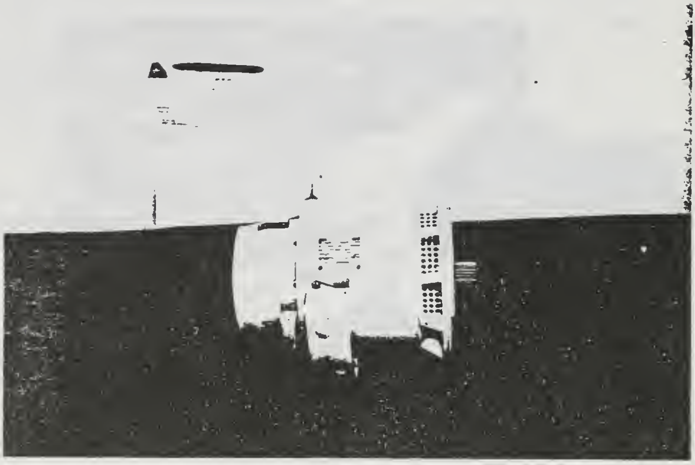


Counterfeit starters and generators represented to industry as "0" time overhauls with a false FAA maintenance release statements attached.

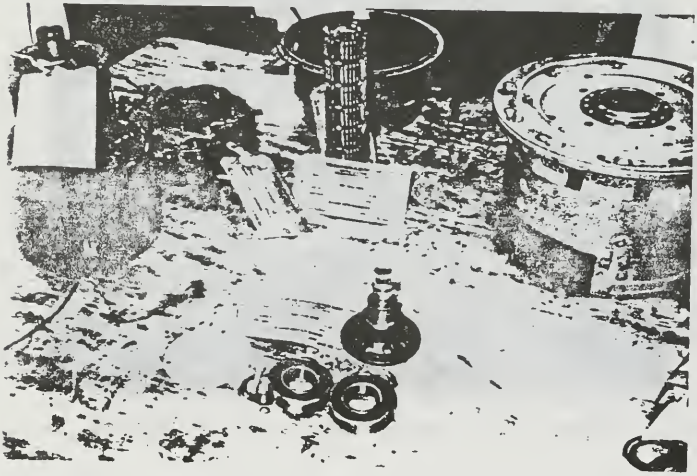
Starter seized during a search warrant which was ready for sale.

The results of a tear down inspection. All parts shown are unapproved or modified and do not meet industry standards. As a result of the OIG investigation, the FAA issued an Airworthiness Directive for the starters.

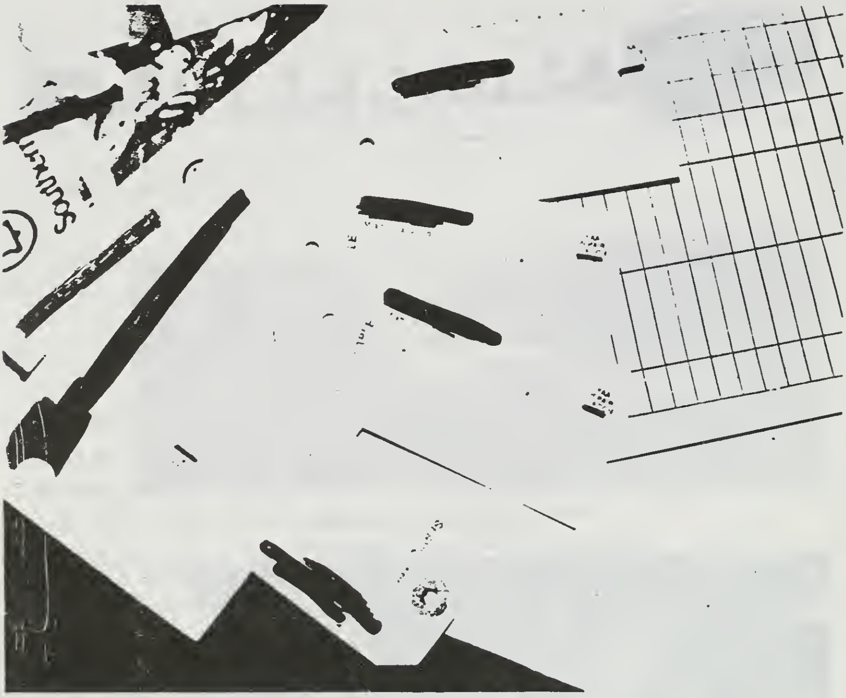
Aircraft generator ready for sale.



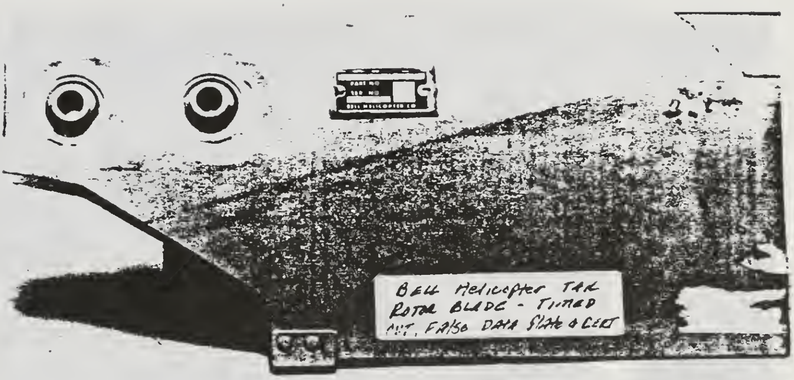
The results of a teardown inspection of the generator showed unapproved parts and improper maintenance procedures were used in the overhaul process. FAA certified repair stations worked in conspiracy with the parts distributor in the overhaul process.



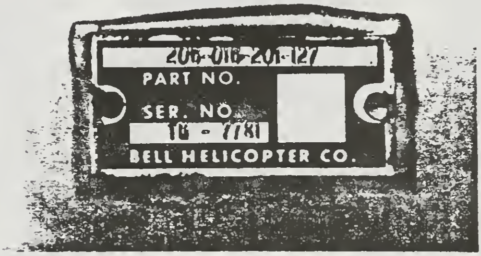
A search warrant was served on a parts distributor suspected of selling parts with false certifications. Distributors are not regulated by the FAA, but need certifications to sell their parts to air carriers or repair stations which are regulated.



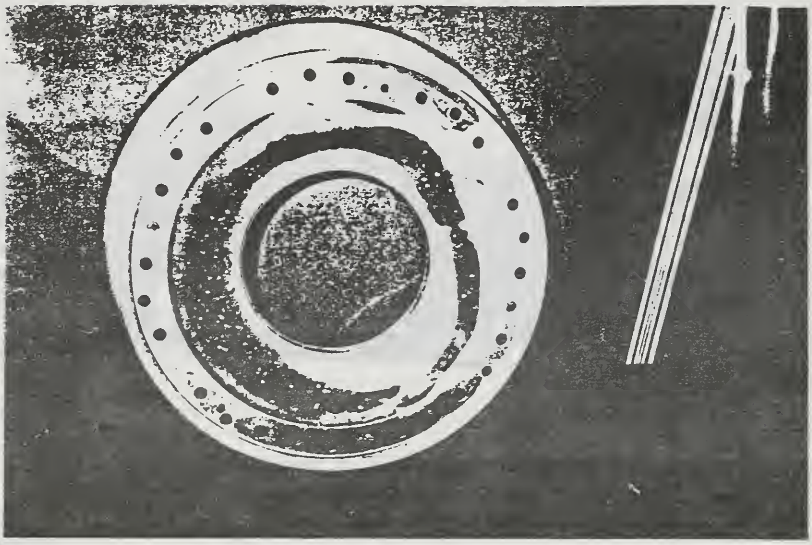
During the search warrant, blank maintenance release statements were found in the president's desk drawer. The statements, more commonly known as "yellow tags," are often stolen and sold to distributors by repair station employees, or counterfeited by parts distributors.



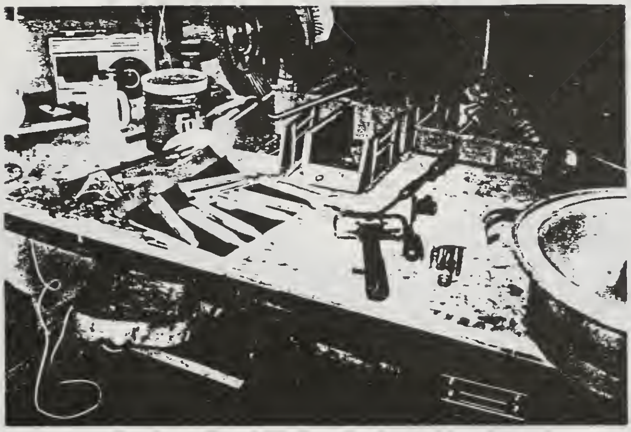
A timed out helicopter tail rotor blade with a false data plate and certification which was reworked by a parts distributor.



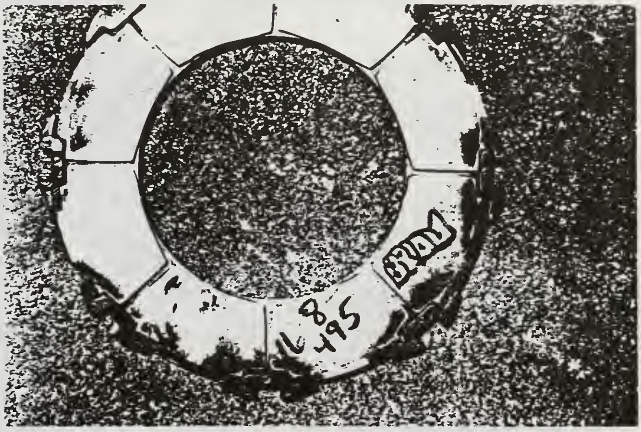
A close up of the false data plate with an incorrect serial number. The number was changed from T47781 to TH-7781.



A parts distributor misrepresented B-727 main wheels as meeting a certain gross weight rating when in fact they did not. The FAA issued a flight standards information bulletin for airworthiness which required principal inspectors to notify operators.



During a search warrant, this repair station was observed making unauthorized modifications to parts to reuse in brake and wheel overhauls. The FAA issued a Flight Standards Bulletin for airworthiness on the parts.

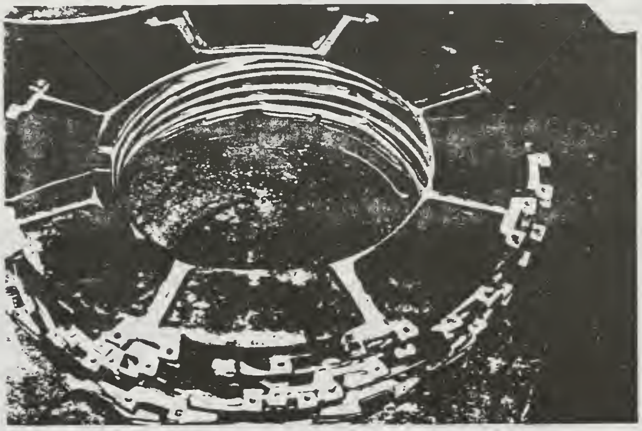


The repair station attempted to use black spray paint on brake rotors to conceal unapproved repairs.

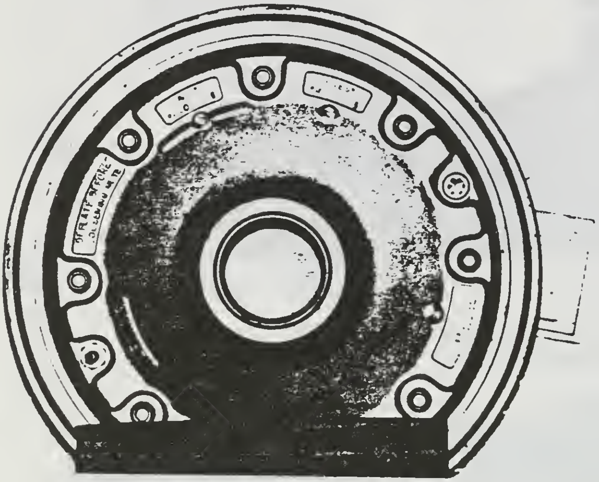
Numerous unapproved DC-8 brake rotors ready for sale on the commercial market.

Whole brake assembly seized after an airline attempted to install it on an aircraft. Wheel would not fit over suspect unapproved brake.

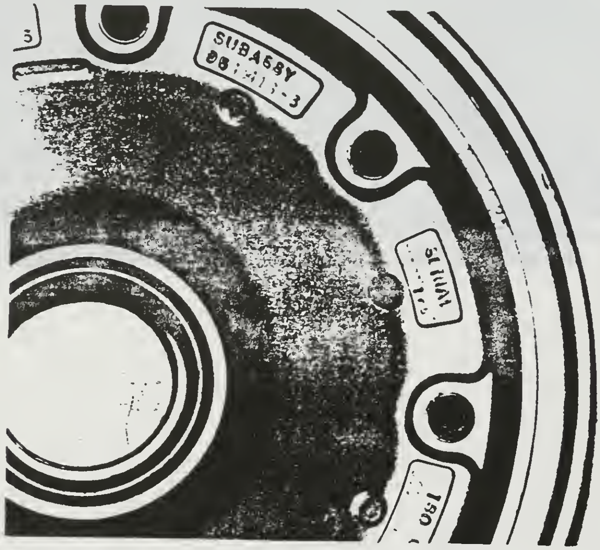
Part number ground off of rotor segment.
Rotor segments illegally ground down to conform to a DC-8 brake from a 737 brake.

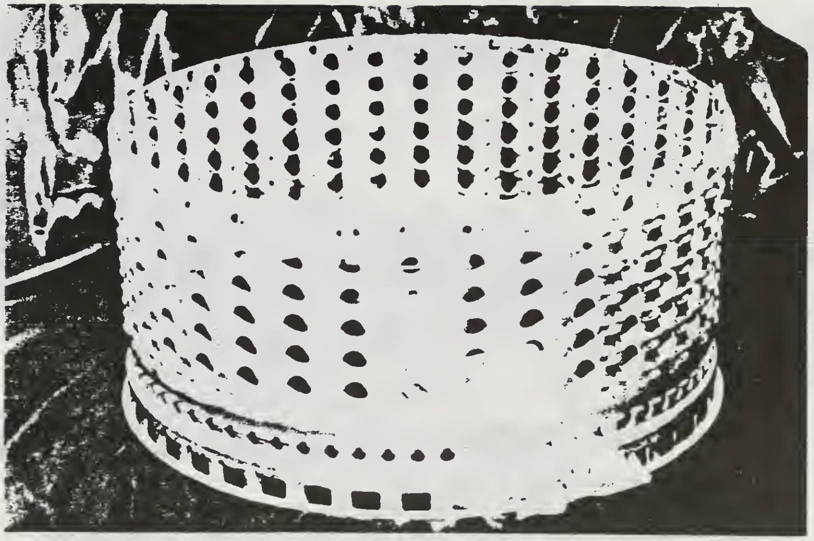


An FAA certificated repair station improperly modified DC-9 nose wheels and improperly recertified them as MD-88 nose wheels, which require a higher gross weight.

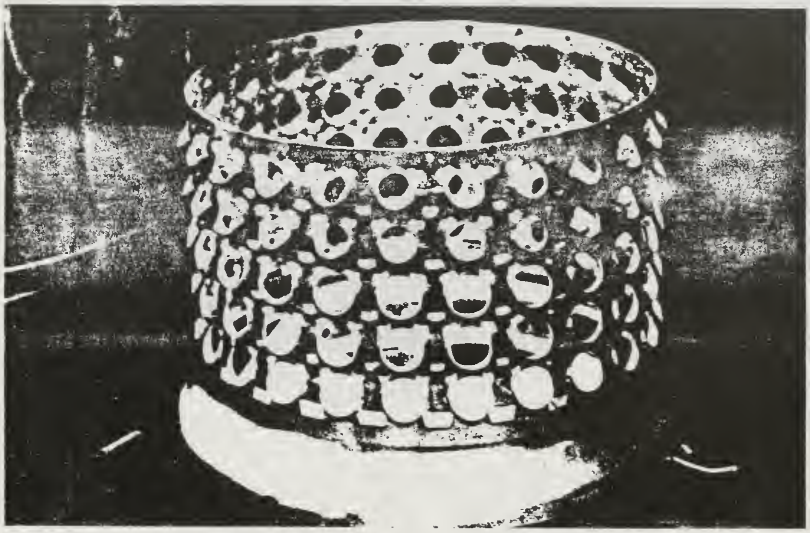


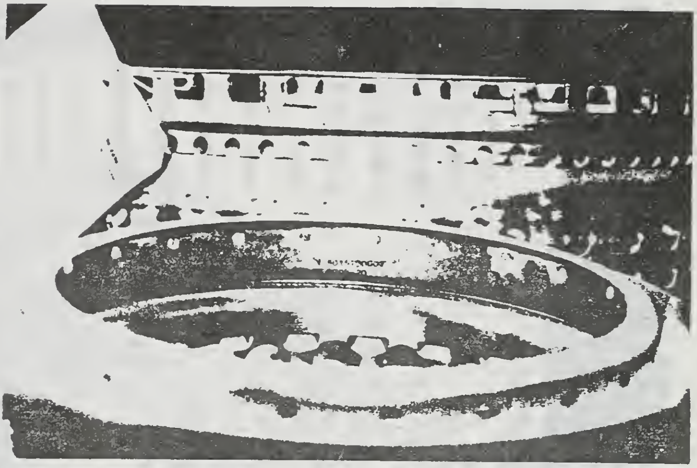
The repair station modified the serial numbers to make the wheels appear to be MD-88s.



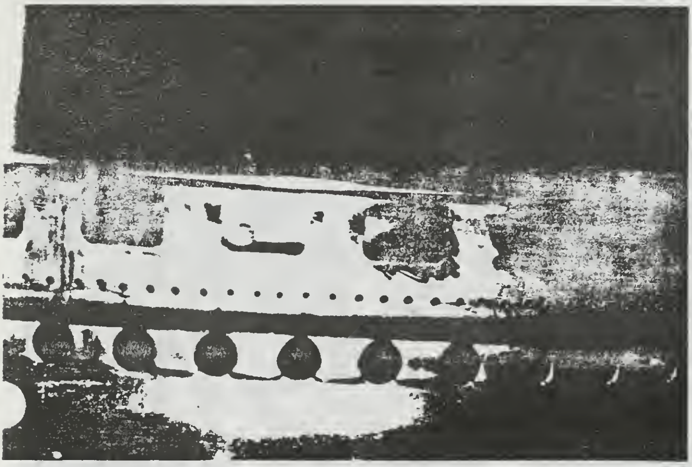


Counterfeit combustion liners used on the General Electric CJ-610 and J-85 jet engines. Top photo is an outer combustion liner. Lower photo is an inner combustion liner. These liners were manufactured in Taiwan, and were not produced under the authority of a Parts Manufacturer Approval or any type of license agreement with General Electric. These components are critical, life limited parts.

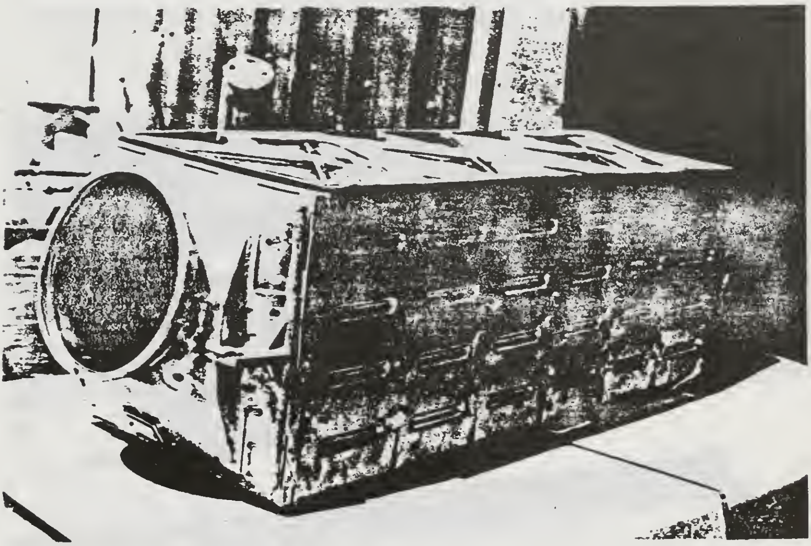


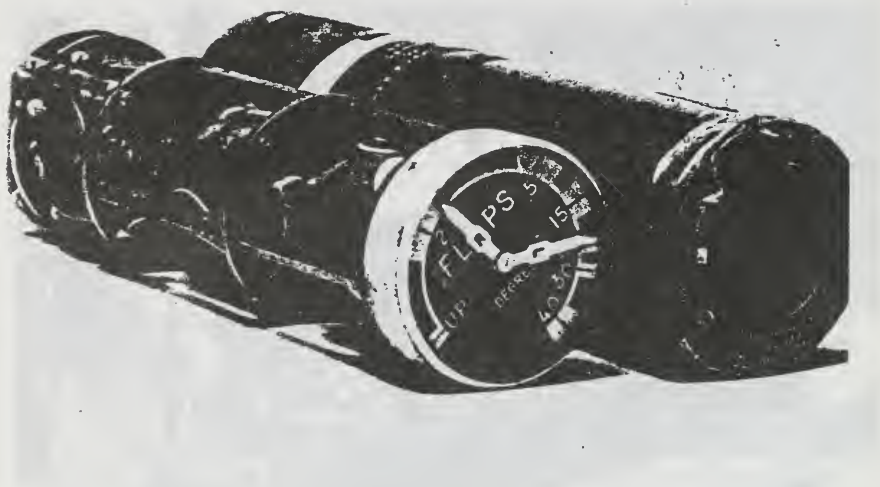


These counterfeit combustion liners are identified by the presence of a serial number below the part number (See top photo), but do contain the part number, lot number and the General Electric manufacturer code "99207." A number of counterfeit liners were seized just prior to installation on U.S. civilian aircraft. In one instance, an FAA repair station which purchased these liners noticed that the outer shell was missing coolers holes near the flange (see bottom photo). The FAA repair station added the cooling holes to the liner.

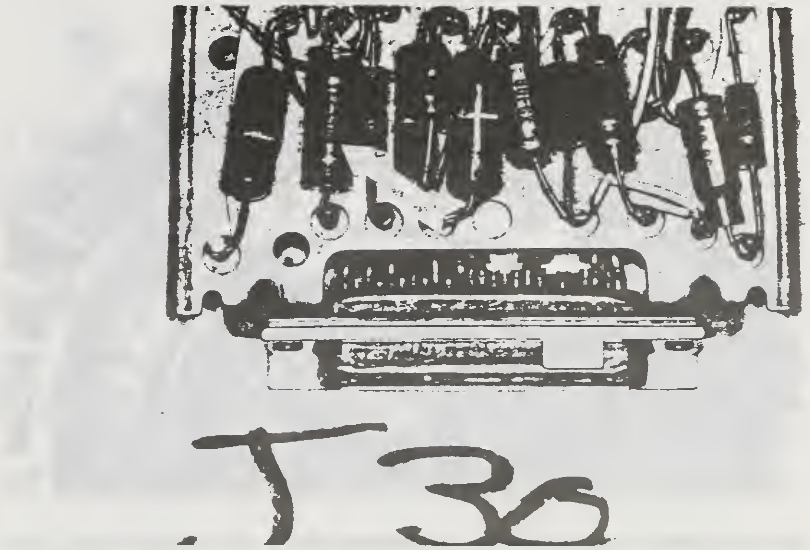


An FAA certificated repair station used an unapproved epoxy on this Airbus pre-cooler.

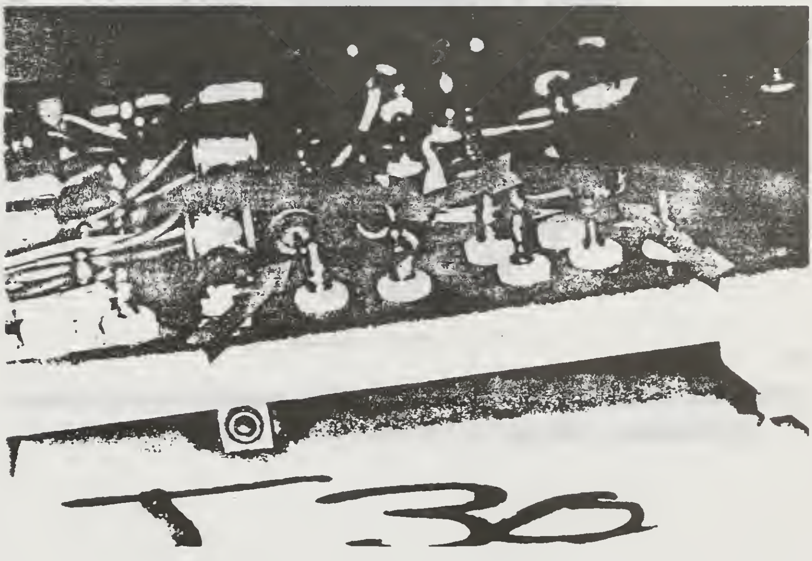


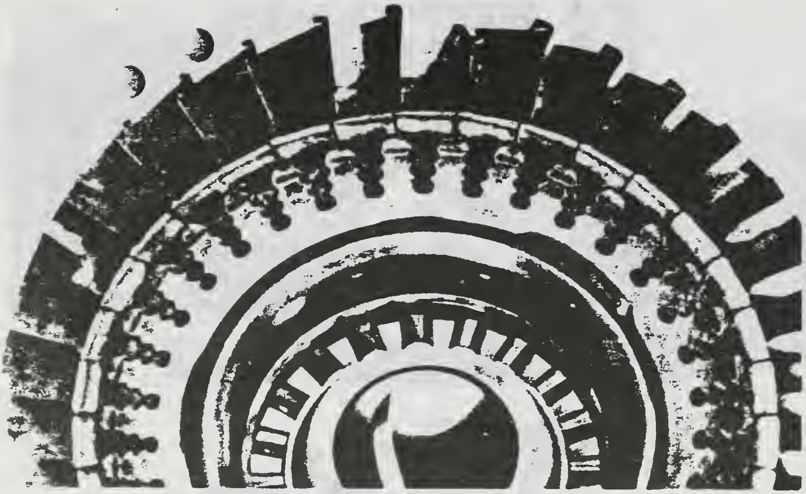


counterfeit parts and improper maintenance procedures. The counterfeit parts were fabricated by a machine shop. The repair station supplied original equipment manufacturer parts to the machine shop to copy.

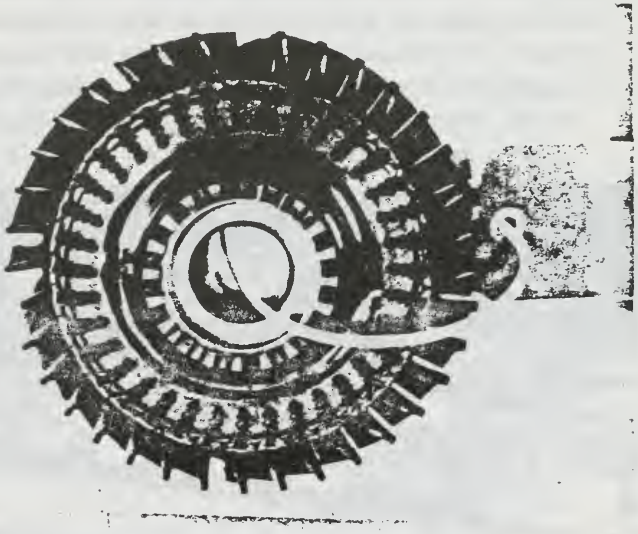


Numerous FAA certificated avionics repair stations use unapproved parts and improper maintenance procedures in overhauling flight computers, switches and valves. These photos show unapproved parts in an auto pilot computer that failed in flight causing the plane to lose altitude. In some cases the repair stations lacked the proper test equipment and manuals to repair the parts.

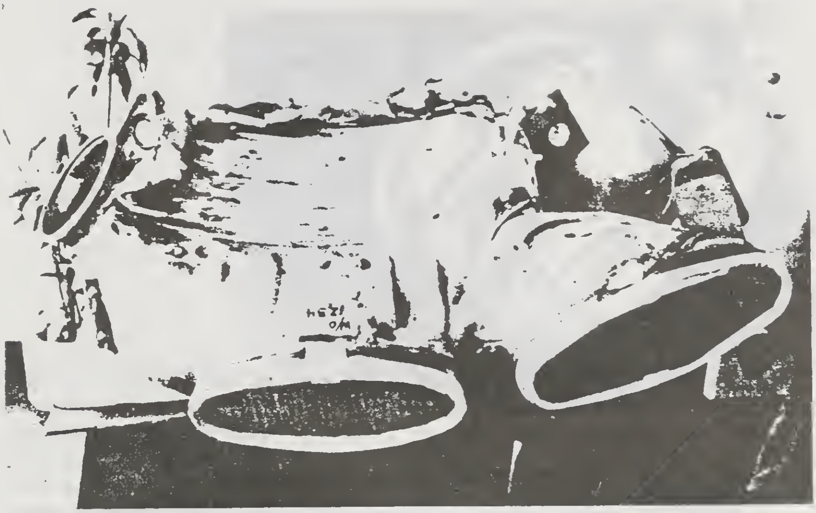




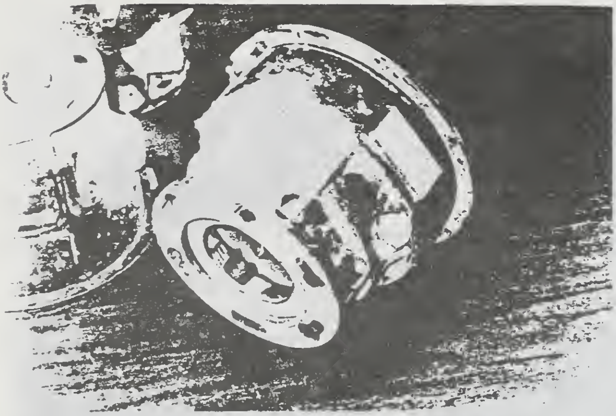
A repair station reworked worn out turbine blades by building the tip back up through welding. Maintenance records were falsified to sell the blades.



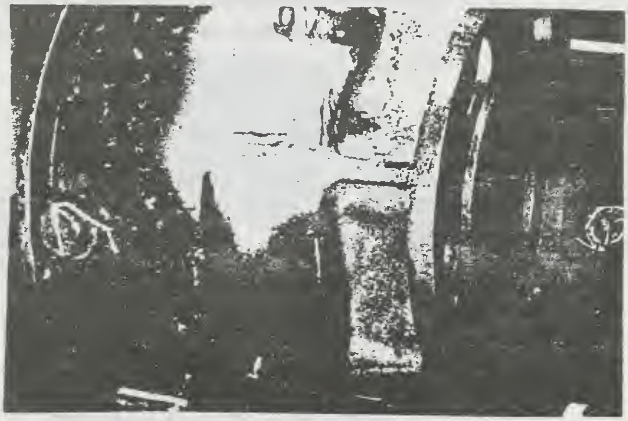
Due to improper welds, the blades broke off in operation causing damage to the engine. This part was removed from a commuter aircraft.



An FAA certificated repair station falsely certified that this B-747 heat exchanger had been repaired, inspected and was in return to service condition.

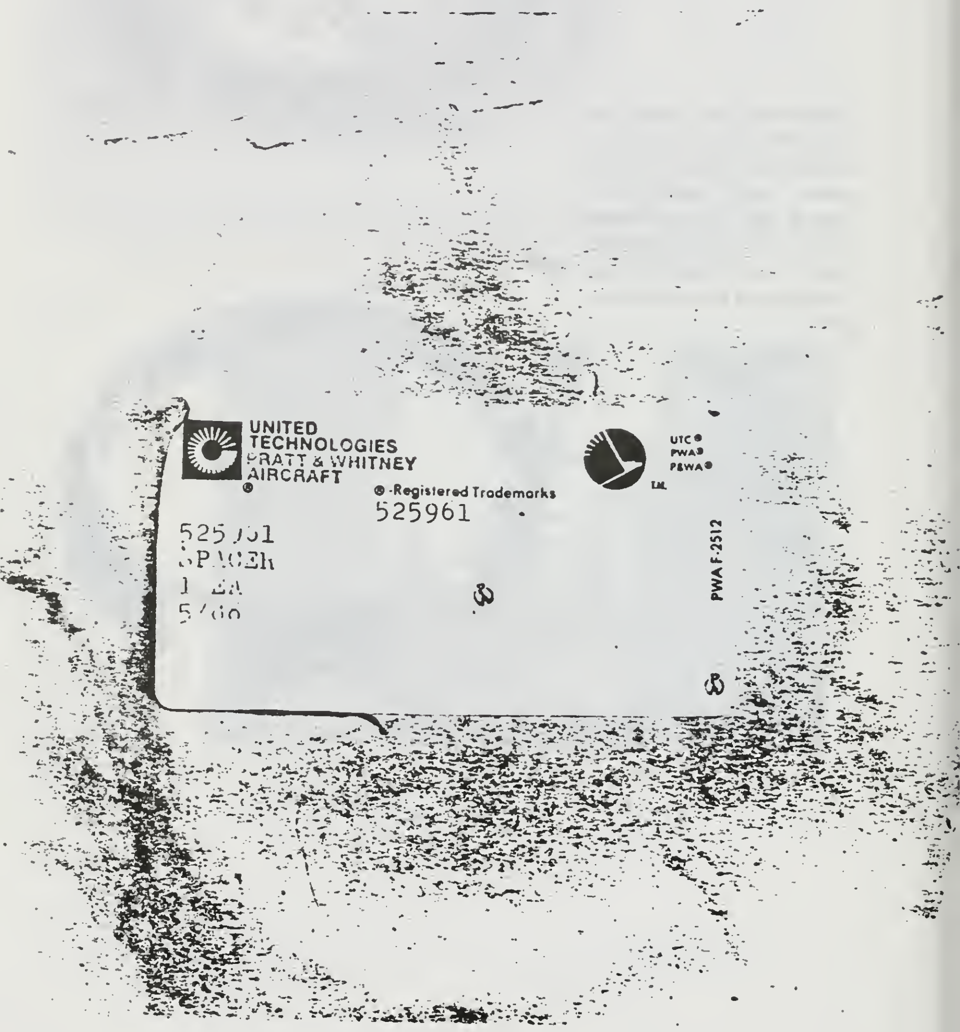


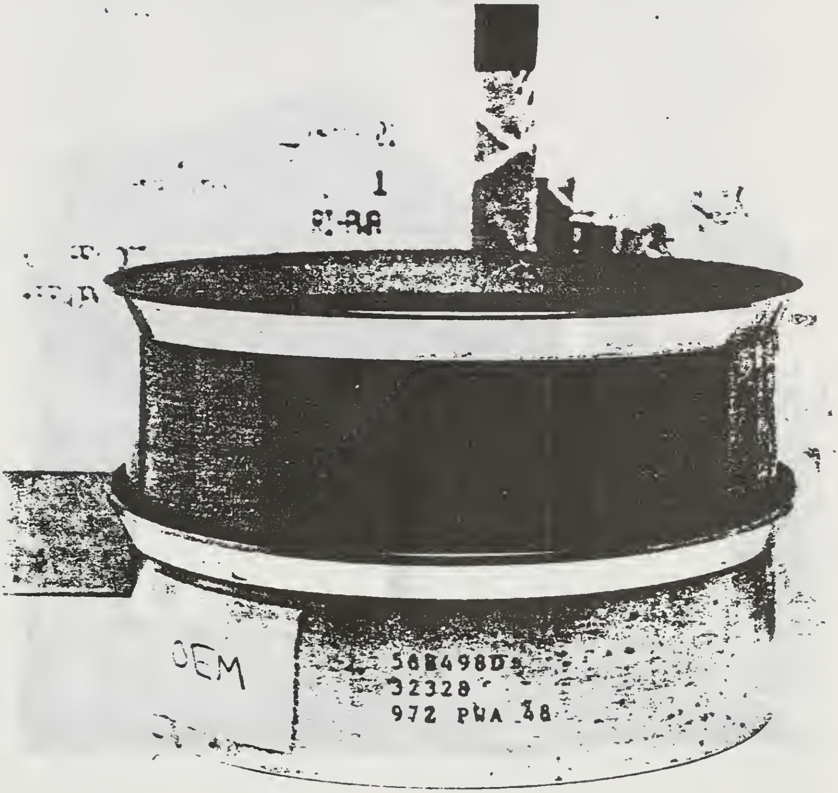
Aircraft starter housing showing welds made by an unauthorized/unapproved repair station. From this point the housing would be grinded smooth then painted to cover the welds, then sold on the commercial market.



The bearing seal shown on top, which is silver in color, is an authentic Pratt & Whitney bearing seal spacer. The bearing seal on the bottom, bronze in color, is counterfeit. The FAA issued an Airworthiness Directive for the part.

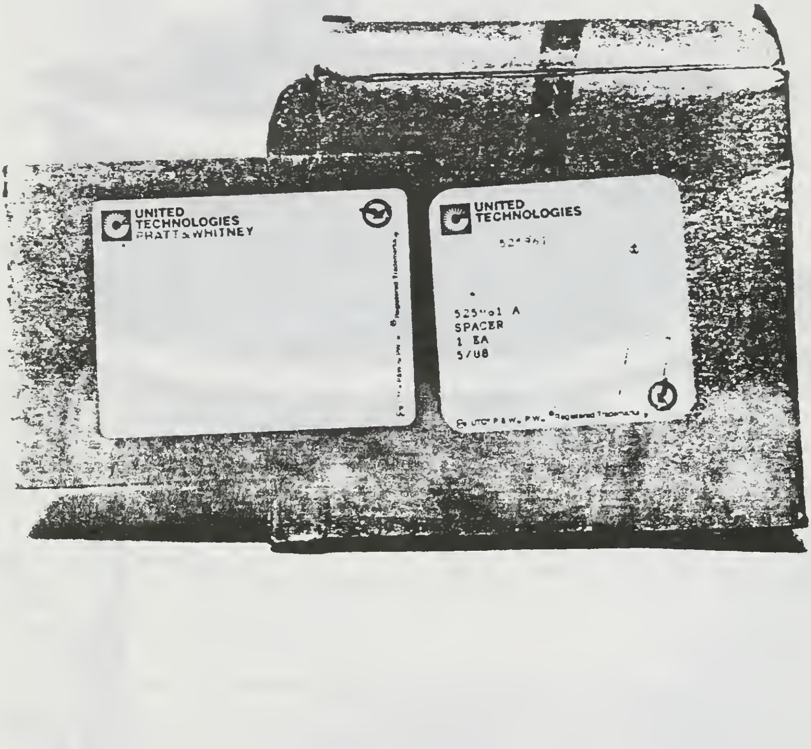
Counterfeit Pratt & Whitney label. Incorrect part information is also contained on the label.



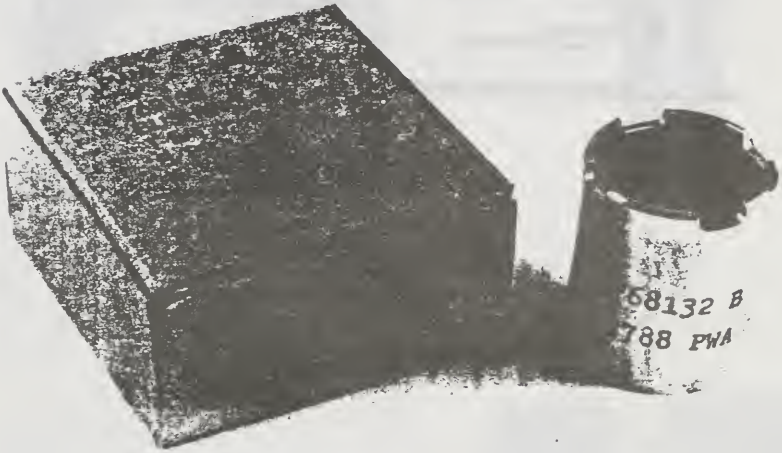


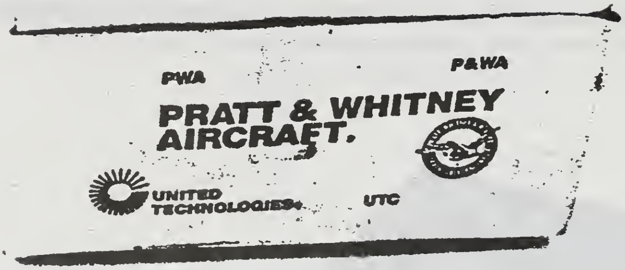
The part on top is a counterfeit Pratt & Whitney bushing. The part on the bottom is an authentic Pratt & Whitney bushing.

The box on the left contains an authentic Pratt & Whitney label. The box on the right contains a counterfeit Pratt & Whitney label. Notice the eagle on the right is sideways.

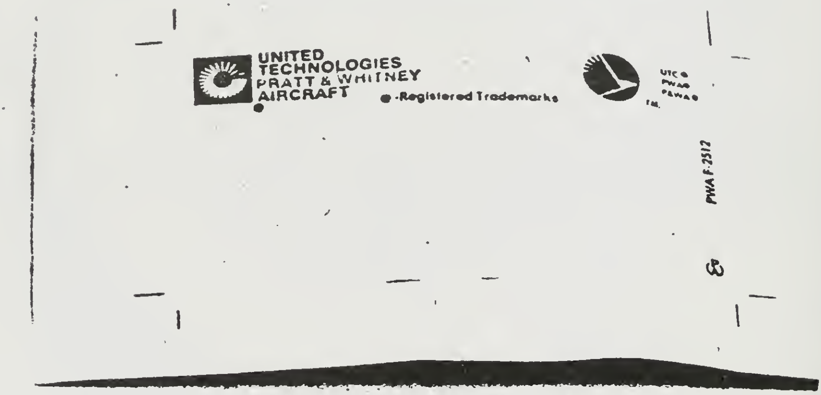


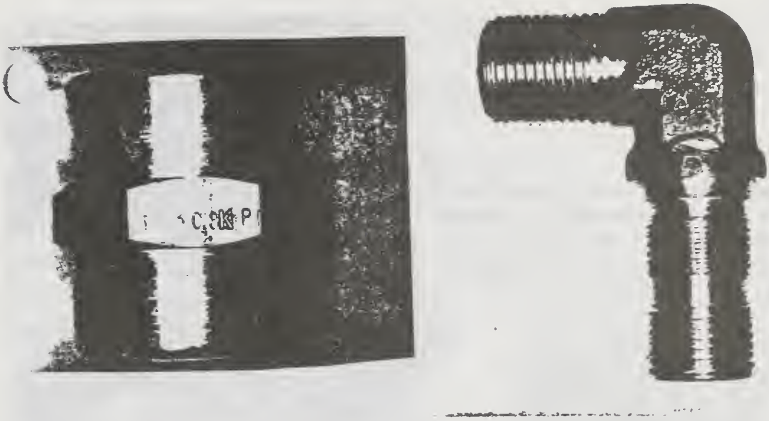
Counterfeit Pratt & Whitney tie rod bushing with improper packaging.





Counterfeit Pratt & Whitney packaging.

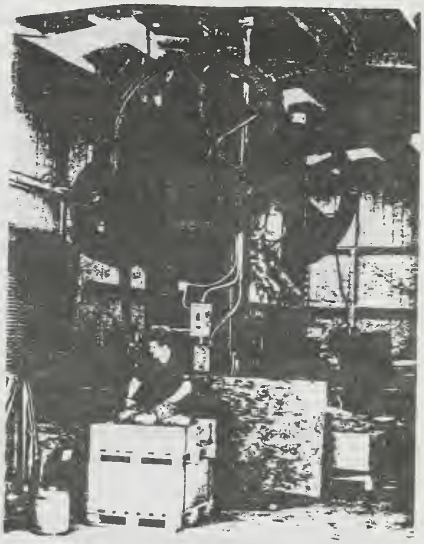




The above photographs show a chemical identifier letter was overstamped with another letter to indicate part was higher grade.

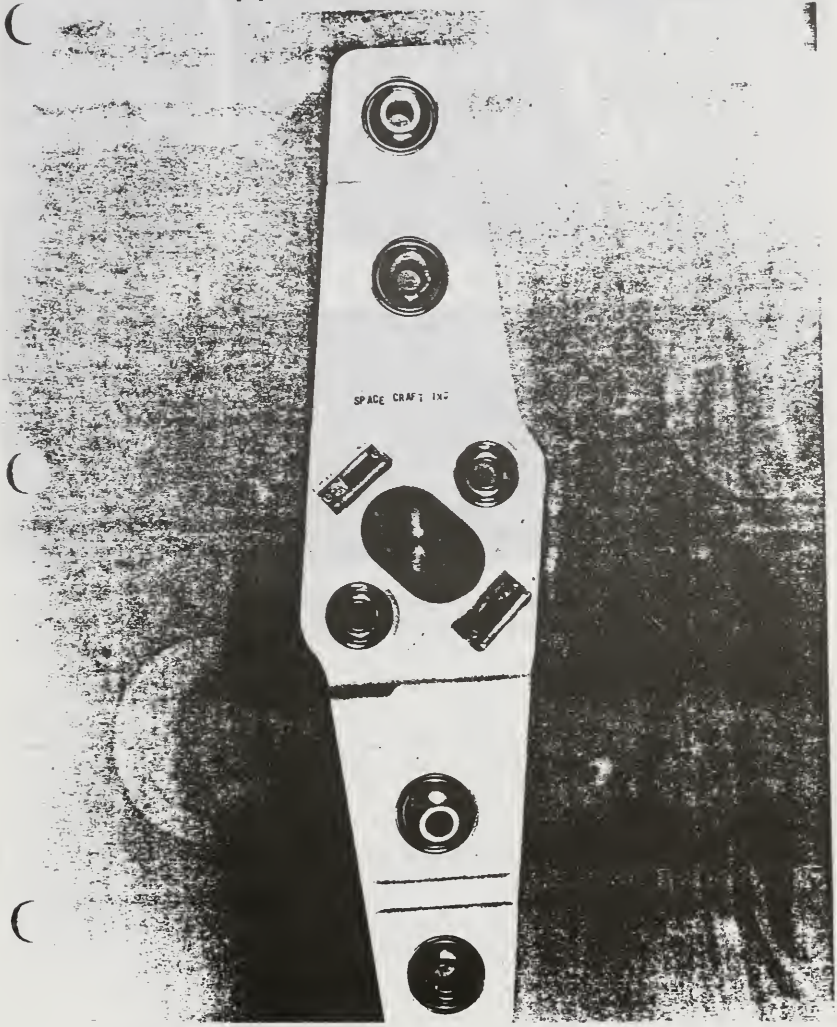
Chemical identifier letter ground out and re-stamped with another letter to indicate part was higher grade.

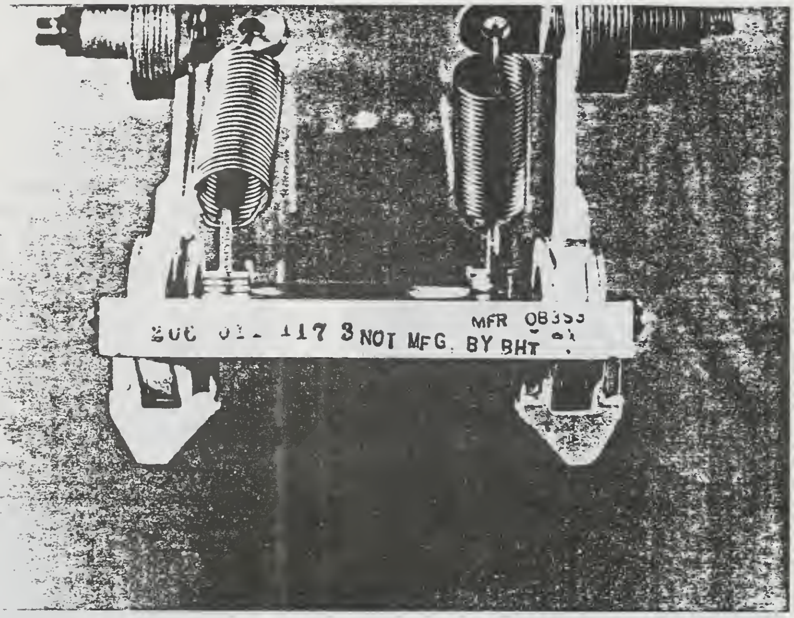
A manufacturer of military parts applied for an FAA Parts Manufacturer Approval and was denied. A metal press used to manufacture unapproved brake parts at his facility.



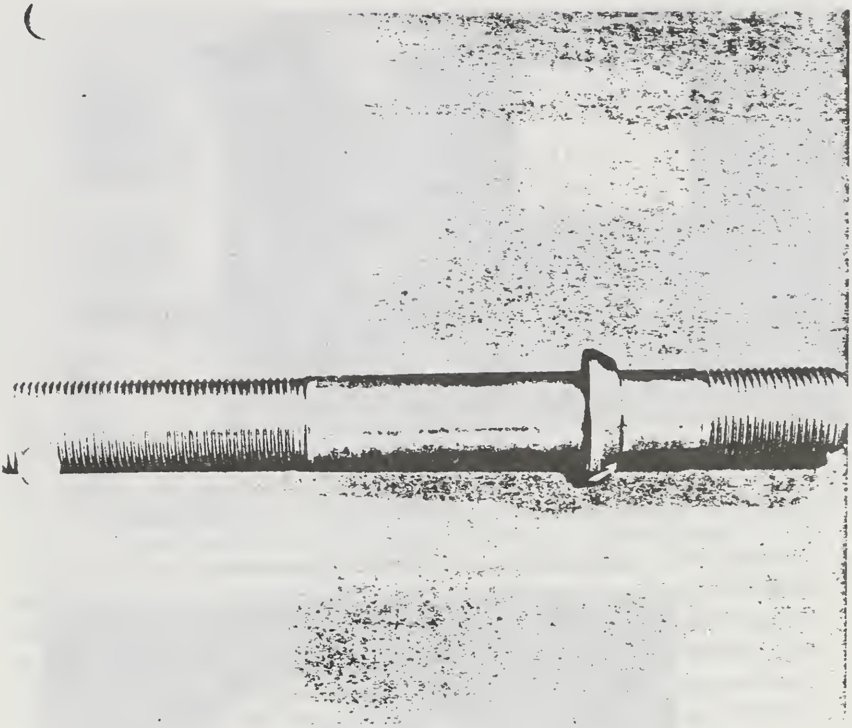
The parts manufacturer also had aircraft brake pads manufactured in Europe and sold throughout the world with Original Equipment Manufacturer's part number stamped on. Distributor was not licensed by the Original Equipment Manufacturer nor did it hold FAA Parts Manufacturer Approval.

Helicopter tail rotor yoke which dimensionally does not meet original equipment manufacturer's specifications.

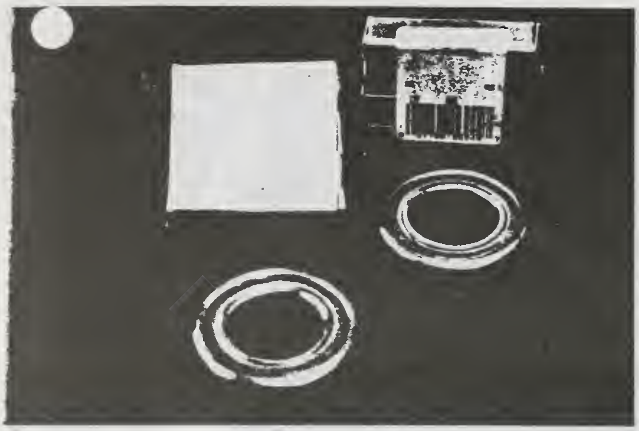




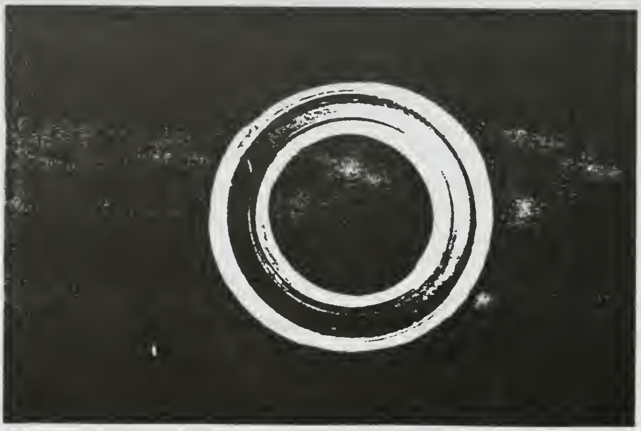
The metal on this helicopter grip assembly is made from material only half the strength required by the specifications.

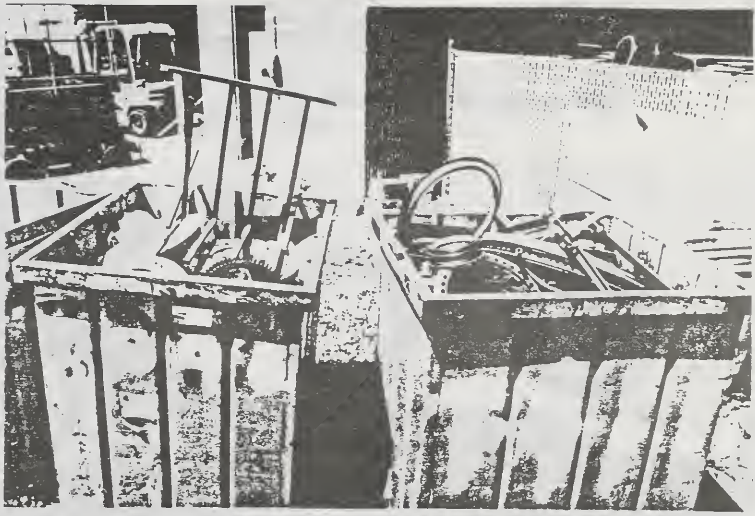


This helicopter latch bolt is not the proper hardness.

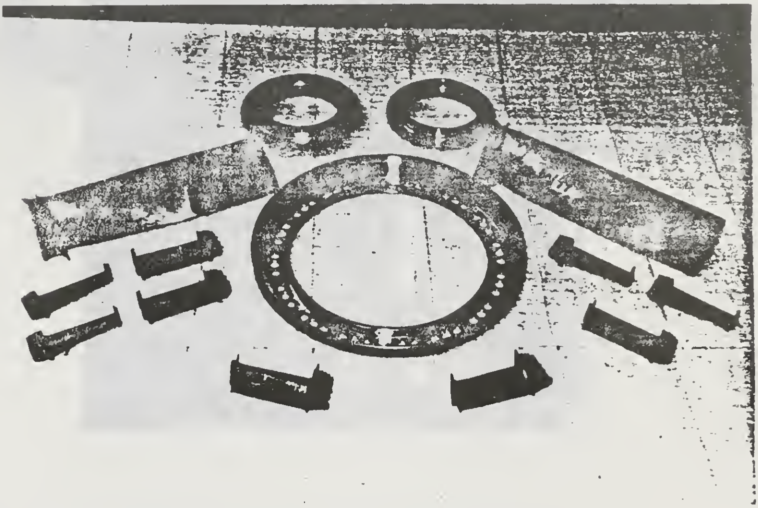


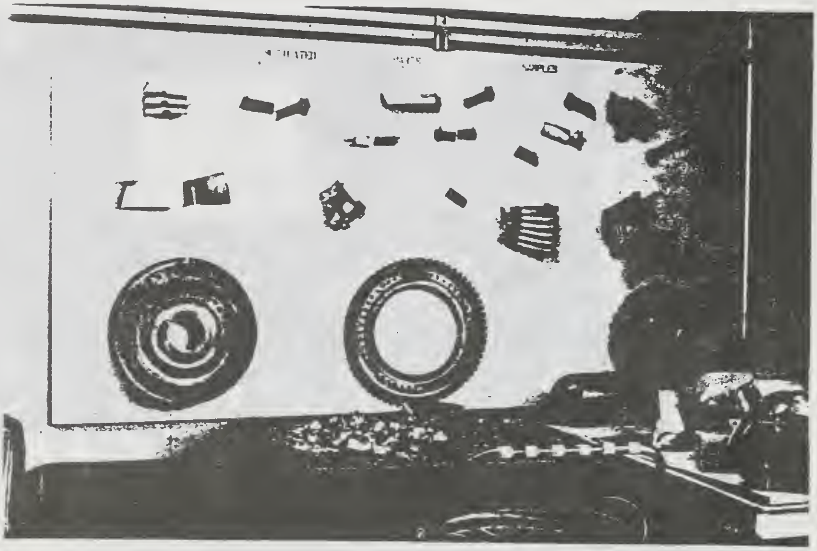
Industrial bearings which were falsely represented and sold as Bell Helicopter tail rotor drive shaft hanger bearings. The aviation bearing, which is a critical component, has a black seal, the unapproved bearing has a green seal and is made from a different steel.



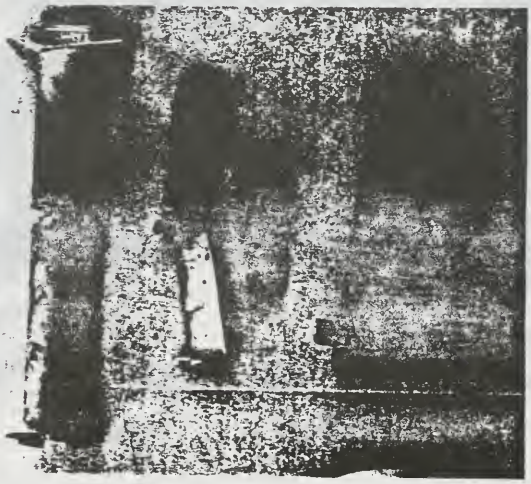


Above: Aircraft parts are sold by the bin to metal scrap dealers who agree to melt down the parts. The regulations do not prohibit the sale of such parts by the air carriers. The metal scrap dealer, who is not regulated, then resells the parts to repair stations without certification, who then without traceability return the parts to service. This can be a violation of the Federal Aviation Regulations. Below: These engine parts were removed from an air carrier's scrap bin. Some of these parts can be resold by the scrap dealers for $200, they paid approximately $3 per pound.

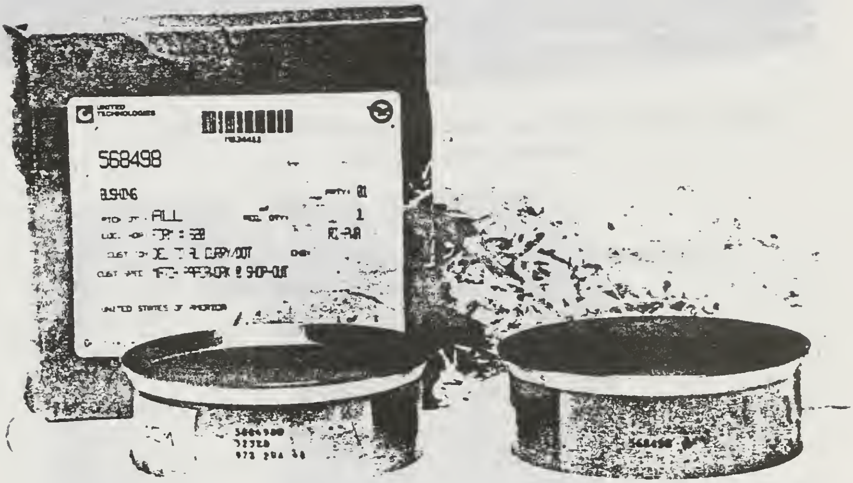




Some air carriers have initiated a mutilation program for all life limited and unrepairable parts. This does increase operating costs for the carriers. However, once the parts are mutilated, it is not economically feasible for anyone to attempt to rework the parts.



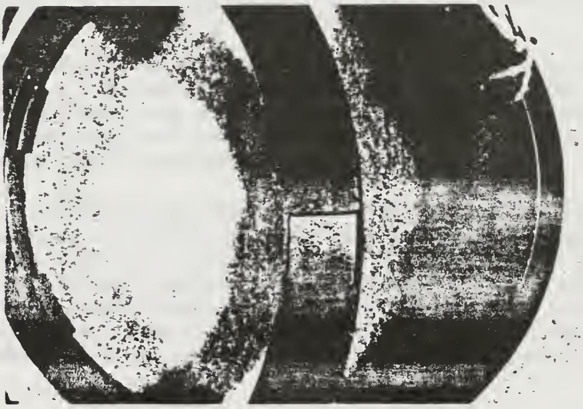
Part on the left is an authentic Pratt & Whitney rear hub compressor bushing with legitimate packaging. Part on the right is a counterfeit Pratt & Whitney bushing, along with the packaging with which it was sold. The counterfeit was not sold in any type of box.



The counterfeit spacer has a part number etched by a hand. According to Pratt & Whitney, the markings are incomplete.

Sometimes just the difference in appearance can be an indication of an unapproved part. The diaphragm to the right is unapproved and was sold with a false certification.

This counterfeit engine spacer has a rough finish on the inside, the authentic part is smooth.



TAB 8

Air Transport Association

June 10, 1994

Federal Aviation Administration
Attn: Rules Docket (AGC-10)
Office of the Chief Counsel
800 Independence Avenue
Washington D.C. 20591

Subject: Petition for the regulation of aircraft parts distributors, suppliers, sellers, brokers and surplus dealers

Ladies/Gentlemen:

In accordance with FAR Part 11.25 the Air Transport Association, on behalf of its member airlines[1], petitions the FAA to establish Federal Aviation Regulations requiring quality/inspection systems for all aircraft parts distributors, suppliers, sellers, brokers and surplus dealers (hereafter referred to as "suppliers"). Regulations should be established which mandate a quality system that ensures all parts sold for installation on a type certificated aircraft are properly documented and provide adequate traceability to the approved manufacturing source or regulated agency.

Airlines are extremely cautious when sourcing parts and rely heavily on reputable suppliers as a vital link in the parts supply chain. Suppliers purchase low-cost bulk orders from manufacturers who in many cases are unable or unwilling to produce or stock smaller quantities to meet the demand of individual airlines. Used extensively, suppliers offer an alternative source and sometimes the sole source for aircraft parts.

Under the existing Federal Aviation Regulations, the FAA has regulatory authority over airlines, manufacturers and repair stations but lacks specific jurisdiction over suppliers. Suppliers can buy and sell parts without any FAA approved quality control/inspection system. Although the airlines request only approved parts via the purchase order, the burden for ensuring compliance with federal regulations is at the receiving end of the parts transaction cycle rather than at the origin.Air carriers have solid quality control procedures in place and a proven track record of success as evidenced by no aircraft mishaps related to unapproved parts. However, it is imperative that every step possible be taken to ensure no opportunity is available to introduce an unapproved part into the parts distribution/supply system.

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[1] ATA's members are Alaska Airlines, Aloha Airlines, American Airlines, American Trans Air, Continental Airlines, Delta Air Lines, DHL Airways, Evergreen International Airlines, Federal Express, Hawaiian Airlines, Northwest Airlines, Reeve Aleutian Airways, Southwest Airlines, Trans World Airlines, United Airlines, United Parcel Service and USAir. Our associate members are Air Canada, Canadian Airlines International and KLM Royal Dutch Airlines.

To further that objective, there must be regulations which will help deter and remove unethical organizations from the aircraft parts business. Without the appropriate levels of deterrence and civil penalties, the system will become more dependent on the operator's quality/inspection system to detect these suppliers and their parts. Suppliers should have a regulatory responsibility to help assure the authenticity of parts that they provide to operators. Regulations of suppliers will also provide the FAA with the authority to impose sanctions promptly upon suppliers who engage in misconduct. Since the FAA would have the power to withdraw a supplier's authority to operate, we believe that suppliers would have a strong incentive to abide by such regulations.

Mandating a quality/inspection system and bringing suppliers under the jurisdiction of the FAA will help apportion responsibilities and strengthen the system's weakest link. Suppliers should be required to adopt a quality control system so that all parts are properly documented and traceable to an approved source. To help ensure compliance the new regulations could make a supplier's facilities available for FAA inspection at any time so that unscrupulous suppliers could be subject to appropriate enforcement action.

Industry is willing to work cooperatively with FAA in drafting and enforcing the regulations. It is recommended that the regulation be based on the supplier responsibilities and requirements specified in ATA SPEC 106, "Sources & Approved Parts Qualification Guidelines" (see enclosed). SPEC 106 describes the suggested guidelines for a supplier's quality program and includes the following areas of responsibility:

- General Quality Control System
- Documentation and Certification
- Inspection
- Measuring and Test Equipment
- Technical Data Control
- Records
- Shelf Life Program
- Training
- Procurement
- Material Control
- Facilities
- Quality Control
- Shipping
- Scrapped Parts

In addition, the following is recommended:

1. The regulation should cover FAR Part 121, 135 and 145 activities for all commercial services (airline sales of parts should be subject to the regulations).

2. The scope of the regulations should only include suppliers of parts for installation on commercial aircraft (for compensation only).

3. Delegate authority to second and third party accreditors such as CASE, to audit/evaluate suppliers which serves as a basis for subsequent FAA certification (minimizes FAA investment and resources).

Supplier regulation will not only enhance safety but will also improve the public's perception and confidence in the air travel system. Moreover, the airlines believe regulation of suppliers will impose a uniform standard upon all suppliers of aviation parts. For these reasons, the regulation of this segment of the parts chain is essential to an ongoing and safe air travel industry.

We greatly appreciate your expeditious response to our request.

James E Landry

James E. Landry
President

TAB 9

level. By adopting commercial practices, DOD will likely benefit by obtaining much higher sales proceeds for its parts.

Adopting Private Sector Practices for Scrap Parts

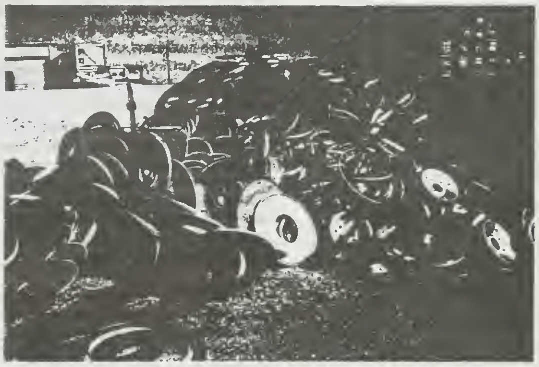
During our review, we also noted that an opportunity existed for DOD to minimize improper use of scrap parts by adopting private sector practices that control such parts. Typically, the service life of such parts has expired, or the parts have been damaged, thereby rendering them unusable. FAA and DOD officials believe that scrap parts could pose safety hazards and should not be used on civil aircraft.

While DOD has provisions to ensure that aircraft parts posing a national security risk are mutilated and parts posing a product safety risk are destroyed prior to sale, thousands of scrap aircraft parts do not fall under these provisions. According to DOD officials, no controls exist for the scrap aircraft parts that, on the surface, do not pose a safety risk, but which may in fact present a risk if improperly used or misrepresented by the purchaser as usable. According to officials from FAA and the Department of Transportation's Office of Inspector General, financial motives can lead unscrupulous individuals to illegally refurbish or clean up DOD scrap aircraft parts and pass them off in the civil aviation market as usable. Such parts, which would cost thousands of dollars if usable, can be acquired for pennies per pound as scrap.

According to the Transportation Inspector General officials, specific cases have been found where scrap military aircraft parts have been made to look usable and were resold in the civil aviation market as such. For example, a federal indictment issued in 1991 charged that an aircraft parts distributor misrepresented severely worn military aircraft parts as usable. According to a Transportation Inspector General official, the parts were bought as scrap. The aircraft parts distributor, who pleaded guilty to the charges, took ownership of several military combustion liner assemblies in scrap condition. The distributor attempted to refurbish these assemblies by welding the cracks and in other ways making the assemblies appear serviceable. According to a Transportation Inspector General official, the company also modified the assemblies by drilling an additional hole in the liners so that they would fit the civil version of the jet engine and sold them to a civil aviation industry customer for reuse.

FAA officials told us they believe that DOD could take additional precautions to ensure that its scrap parts do not reenter the civil aviation market as usable. DOD is not required to and does not mutilate many of the flight-critical scrap parts that it sells. This sometimes leaves scrap parts with the appearance of being in good condition and usable. One disposal yard we visited had piles of scrap parts that appeared as if they were usable, as shown in figure 2. The supervisor told us that improper reuse of the parts could potentially occur because some of the parts looked as if they had never been used.

Figure 2: Scrap Pile of Surplus Aircraft Parts



DOD also does not require a scrap warranty from its buyers of scrap parts. Scrap warranties are contractual documents signed by the buyer, which certify that scrap parts will be used only as scrap and will not be resold as usable. While DOD requires its defense contractors to obtain these warranties for the military aircraft parts they sell as scrap, DOD does not require the DRMO to obtain them from buyers of scrap parts because, according to DOD officials, the agency does not view these parts to be at risk of misuse.

In contrast, officials from United Airlines and Pratt & Whitney, an aircraft engine manufacturer, told us they require that scrap warranties be completed for all aircraft scrap leaving their facilities. According to a United Airlines official, the company obtains legally binding scrap warranties from scrap purchasers, giving the company some control over the final disposition of the scrap parts it sells. The agreement guarantees that scrap will be used only as such and provides a vehicle through which United Airlines could pursue legal remedies if scrap parts are sold as usable. United Airlines also goes one step further by having an employee monitor the status of the scrap by visiting the buyer.

In addition to obtaining scrap warranties, United Airlines and Pratt & Whitney require that good condition and high-risk scrap, such as engine parts, be mutilated prior to sale. In-house mutilation of critical scrap parts provides further safeguards that such parts can never be reused and pose a threat to civil aviation safety. To help its disposal officials better mutilate scrap engine parts, Pratt & Whitney created a guide to parts mutilation. This guide demonstrates through diagrams how certain important engine parts should be mutilated prior to sale as scrap. Such practices guarantee that scrap parts are not salvaged from scrap piles and misrepresented as usable. According to DOD officials we interviewed, the time and cost of mutilating all DOD scrap aircraft parts would be prohibitive.

Recommendations

We recommend that the Secretary of Defense explore ways of providing greater financial incentives to enhance proceeds from the sale of usable surplus parts. One alternative would be to return a portion of the proceeds, generated from the sale of such parts, to both DRMOs and the National Sales Office to help them carry out the operation of disposal activities more effectively. The additional funds could be used to enhance the expertise of disposal staff and familiarize them with all aspects of the surplus aircraft parts market that commercial airlines have found to be successful.

We also recommend that the Secretary of Defense direct the Director of the Defense Logistics Agency, in conjunction with the military services, to conduct a program to determine how (1) commercial-type aircraft parts and their civil applications can best be identified for DOD disposal staff and (2) parts that conform to an existing FAA certification or have potential to be FAA certified can be identified for DOD disposal staff and relevant information forwarded with the part. DOD could take a phased approached by initially testing these practices at a few DRMOs before determining their applicability to DOD's entire disposal system.

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